

THE
Compleat Surgeon:

OR, THE
Whole Art of *SURGERY* explain'd
in a most Familiar Method.

Containing

An exact Account of its Principles and several
Parts, *viz.* Of the *Bones*, *Muscles*, *Tumours*, *Ulcers*,
and *Wounds*, simple and complicated, or those by
Gun-shot; As also of *Veneral Diseases*, the *Scurvy*,
Fractures, *Luxations*, and all Sorts of Chirurgical
Operations.

To which is added,

A *Chirurgical Dispensatory*; shewing the manner
how to prepare all such Medicines as are most
necessary for a Surgeon, and particularly the
Mercurial Panacea.

Written in *French* by *M. Le Clerc*, Physician in
Ordinary to the *French King*; And faithfully
Translated into *English*.

The Fifth Edition.

To which is added, a Description of *Bandages* and
Dressings, according to the most commodious way
now used in *France*. By the same Author.

L O N D O N :

Printed for *R. Bonwicke*, *W. Freeman*, *Tim. Goodwin*,
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THE

PREFACE.

SO great a number of Treatises of Surgery, as well Ancient as Modern, have been already publish'd, that a plenary Satisfaction seems to have been long since given on this Subject, even to the Judgment of the most curious Inquirers: But if it be consider'd, that a young Surgeon ought always to have in view the first Principles of this Noble Art explain'd after a familiar and intelligible manner, it will be soon acknowledg'd, that

The PREFACE.

there is good Reason to set about the Work anew : For besides, that the Writings of the Ancients being so voluminous, are not portable, they are also very intricate and confus'd : Nay, the whole Art has been so far improved and brought to Perfection by able Masters in the present Age, that they are now almost become unprofitable.

Some Modern Authors have set forth certain small Tracts, which only explain a few Chirurgical Operations, and on that account deserve only the Name of Fragments. Indeed the Works of some others seem to be sufficiently Compleat, but are Printed in so large Volumes, and contain so many Discourses, altogether

The PREFACE.

altogether foreign from the Principal Subject, that they have almost the same Inconveniencies with those of the Ancients. Therefore the Reader is here presented with a small Treatise of Surgery, yet very plain and perspicuous, in a portable Volume; being free from a multiplicity of impertinent Words, and containing every thing of moment that has been produc'd by the most approved Authors, both Ancient and Modern.

An Introduction is made into the Matter by small Colloquies or Dialogues, to the end that the young Student may be at first led as it were by the Hand; but as soon as he has attain'd to a considerable Progress in these

The PREFACE.

these Studies, this innocent and puerile manner of speaking is abandon'd, to conduct him in good earnest to the most sublime Heights of so admirable an Art; to which purpose, after having penetrated into its first Rudiments and Grounds, he is well instructed in Anatomy, and furnish'd with a general Idea of Wounds and Tumours, which are afterward treated of in particular. He is also taught a good Method of curing Wounds made by Gun-shot, the Scurvy, and all Sorts of Venereal Diseases: From thence he is introduced into the Practice of all manner of Chirurgical Operations in Fractures and Luxations, together with the Use of their

The PREFACE.

their respective Dressings and Bandages.

This small Volume is increased by the Addition of the Excellent Method of Preparing the Brain by M. Duncan, one of the most learned and curious Anatomists of the Age; and with many Judicious Remarks, and new Chirurgical Machines of the Invention of the Ingenious and well Experienced M. Arnaud; whose Merit is own'd to be very great by all knowing Judges. Certainly if that Excellent Operator had often occasion of speaking in Publick, the World would rob him of an entire new Surgery; so fruitful he is in Judicious Remarks, Solid Reasonings, and New Inventions.

At

The PREFACE.

At the end of the Work is added a Compleat Chirurgical Dispensatory, shewing the Method of preparing such Medicinal Compositions as are chiefly us'd in the Art of Surgery; that upon the whole Matter it may be justly affirm'd, That this little Manuel has all the Advantages of the Ancient and Modern Writings on the same Subject, and is altogether free from their Superfluities and Defects.



TH

THE
Compleat Surgeon:

Or, the Whole

A R T
O F
S U R G E R Y
E X P L A I N ' D , & c .

C H A P. I.

*Of the Qualifications of a Surgeon, and
of the Art of Surgery.*

W *H O is a Surgeon ?*
A Person skill'd in curing Diseases
incident to Humane Bodies by a me-
thodical Application of the Hand.

*What are the Qualifications of a good Surgeon in
general ?*

B

They

The Compleat Surgeon.

They are three in Number: *viz.* Skill in the Theory, Experience in the Practical Part, and a gentle Application of the Hand.

Why ought a Surgeon to be skilful?

Because without a discerning Faculty he can have no Certainty in what he doth.

Why must he be experienc'd?

Because Knowledge alone doth not endue him with a dexterity of Hand requisite in such a Person, which cannot be acquir'd but by Experience, and repeated Manual Operations.

Why must he be tender-handed?

To the End that by fit Applications he may assuage those Pains which he is oblig'd to cause his Patients to endure.

What is Chirurgery or Surgery?

It is an Art which shews how to cure the Diseases of Humane Bodies by a methodical Manual Application. The Term being deriv'd from the Greek Word *Χειρ*, signifying a Hand, and *Εργον*, a Work or Operation.

After how many Manners are Chirurgical Operations usually perform'd?

Four several Ways.

Which be they?

I. *Synthesis*, whereby the divided Parts are re-united; as in Wounds. II. *Diuresis*, that divides and separates those Parts, which, by their Union, hinder the Cure of Diseases, such is the Continuity of the Skin or Flesh in Abscesses or Impostumes, which must be open'd to let out the purulent Matter. III. *Exeresis*, which draws out of the Body whatsoever is noxious or hurtful, as Bullets, Arrows, &c. IV. *Prosthesis*, which adds some Instrument or Body to supply the

the defect of those that are wanting; such are Artificial Legs and Arms, when the Natural ones are lost. It also furnishes us with certain Instruments to help and strengthen weak Parts, such as *Pessaries*, which retain the *Matrix* in its proper Place when it is fallen, *Crutches* to assist feeble Persons in going, &c.

What ought to be chiefly observ'd before the undertaking an Operation?

Four Things, *viz.* 1. What the Operation to be perform'd, is. 2. Why it is perform'd. 3. Whether it be necessary or possible. And 4. The Manner of performing it.

How may we discern these?

The Operation to be perform'd may be known by its Definition; that is to say, by explaining what it is in it self: We may discover whether it ought to be done, by examining whether the Distemper cannot be cur'd otherwise: We may also judge whether it be possible or necessary, by a competent Knowledge of the Nature of the Disease, the Strength of the Patient, and the Part affected: Lastly, the Manner of performing it may be found out, by being well vers'd in the Practice of Surgery.

What are the Fundamental Principles of Surgery?

They are Three in Number: *viz.* 1. The Knowledge of Man's Body. 2. That of the Diseases which require a Manual Operation. 3. That of proper Remedies and Helps upon every Occasion.

How may one attain to the Knowledge of Humane Bodies?

By the Study of Anatomy.

How may one learn to know the Distempers relating to Surgery, and the Remedies appropriated for them?

Two several Ways; viz. 1. By the reading of good Books, and Instructions receiv'd from able Masters of that Art. 2. By Practice and the Observation of what is perform'd by others upon the Bodies of their Patients.

What are the Diseases in general that belong to Surgery?

They are Tumors, Impostumes, Wounds, Ulcers, Fractures, Dislocations, and generally all Sorts of Distempers whereto Manual Operations may be apply'd.

What are the Instruments in general which are commonly used in Surgery for the curing of Diseases?

They are five; viz. The Hand, Bandages, Medicines, the Knife, and Fire.

What is the general Practice which ought to be observed in the Application of these different Helps?

Hippocrates teacheth us, in saying, that when Medicines are not sufficient, recourse may be had to the Knife, and after that to Fire; intimating that we must proceed by degrees.

Are there any Distempers that may be cur'd by the Surgeon's Hand alone?

Yes, as when a simple and small Dislocation is only to be reduc'd.

CHAP. II.

Of Chirurgical Instruments, portable and not portable.

WHAT do you call portable and not portable Instruments?

Portable Instruments are those which the Surgeon carries in his Lancet-Case with his Plaister-Box; and not portable are those that he doth not carry about him, but is oblig'd to keep at home; the former being appointed for the ready Help which he daily administers to his Patients, and the other for greater Operations.

What are the Instruments which a Surgeon ought to have in his Plaister-Box?

These Instruments are a good Pair of Scissors, a Razor, an Incision-Knife strait and crooked, a Spatula, a greater Lancet to open Impostumes, and lesser for letting Blood. They likewise carry separately in very neat Lancet-Cases, a hollow Probe made of Silver or fine Steel; as also many other Probes, strait, crooked, folding, and of different Thickness; a Pipe of Silver or fine Steel, to convey the cauterizing Button to a remote Part, without running the hazard of burning those that are near it; another Pipe or Tube serving instead of a Case for Needles, which have Eyes at one end for sowing; a Carlet, or thick triangular Needle; a small File; a Steel Instrument to cleanse the Teeth; a

Fleam ; a Pair of crooked *Forceps* to draw a *Tooth* ; a *Pelican* ; a *Crow's Bill* ; a *Senticular Instrument* ; a *Hook* to hold up the *Skin* in cutting, &c.

What are the Instruments which a Surgeon ought to keep in his Repository to perform the greater Operations ?

Some of them are peculiar to certain Operations, and others are common to all. The Instruments appropriated to particular Operations, are the *Trepan* for opening the *Bones* in the *Head* ; or elsewhere : The *Catheters* are *Probes* for Men and Women afflicted with the *Stone*, or difficulty of making *Water* : *Extractors*, to lay hold on the *Stone* in *Lithotomy* : Small *Scoops* to fetch away the *Gravel* : Large crooked *Incision-Knives*, and a *Saw* for *Amputations* of the *Arms* or *Legs* : Great *Needles* with three *Edges*, for making *Scotons* : Small *Needles* to couch *Cataracts* : Other *Needles* ; Thin *Plates* and *Buckles* to close a *Hair-Lip*, &c.

May not the Salvatory be reckon'd among the portable Instruments ?

Yes, because the *Balsams*, *Ointments*, and *Plaisters* contain'd therein, are Means whereof the *Surgeon* makes use to restore *Health*.

C H A P. III.

Of Anatomy in general ; and in particular of all the Parts whereof the Humane Body is compos'd.

WHAT is Anatomy ?

It is the *Analysis* or exact Division of all the Parts of a Body, to discover their Nature and Original.

What is requisite to be observ'd by a Surgeon before he goes about to dissect a Body ?

Two Things, *viz.* The external Structure of the Body, and the Proportion or Correspondence between that and the Parts.

Why so ?

Because without the Knowledge of the Surface and external Parts, a Surgeon would be often mistaken in the Judgment he is to pass concerning a Dislocation or Wound, inasmuch as it is by the Deformity which he perceives in the Member, that he knows the Dislocation, as it is also by the Means of the Correspondence which the outward Parts have with the inward, that he is enabled to draw any certain Consequences relating to a Wound which penetrates into the Body.

What is a Part ?

It is that whereof the whole Body is compos'd, and which partakes of a common Life or Sensation with it.

How many Sorts of Parts are there in a Humane Body?

We may well reckon up fifteen distinct Parts, which are the Bone, the Cartilage, the Ligament, the Tendon, the Membrane, the Fibre, the Nerve, the Vein, the Arterie, the Flesh, the Fat, the Skin, the Scarf-skin, the Hair and the Nails.

What is a Bone?

It is the hardest and driest Part of the whole Body, and that which constitutes its principal Support.

What is a Cartilage or Gristle?

It is a yielding and supple Part, which partakes of the Nature of a Bone, and is always fastned to its Extremities, to render its Motion more smooth and easie.

What is a Ligament?

It is a Membranous Connexture usually sticking to the Bones to contain them; as also sometimes to other Parts, to suspend and retain them in their proper place.

What is a Tendon?

It is the Tail or Extremity of the Muscles, made by the re-union of all the Fibres of their Body, which serves to corroborate it in its Action, and to give Motion to the Part.

What is a Membrane?

It is a nervous Part, the Use whereof is to adorn and secure the Cavities of the Body on the Inside, and to wrap up or cover the Parts.

What is a Fibre?

They are fleshy Lines of which the Body of a Muscle is compos'd.

What is a Nerve?

It is a long, white, and thin Body, consisting

of many Fibres, enclos'd within a double Tunick, and design'd to carry the Animal Spirits into all the Parts, to give them Sense and Motion.

What is an Artery ?

It is a Canal compos'd of four Coats, that carrieth with a Kind of Beating or Pulse, even to the very Extremity of the Parts, the Blood full of Spirits, which proceeds from the Heart, to distribute to them at the same time both Life and Nourishment.

What is a Vein ?

It is a Canal made likewise of four Tunicles, which receives the Arterial Blood, to carry it back to the Heart.

What is Flesh ?

It is a Part which is form'd of Blood thicken'd by the natural Heat ; and that constitutes the Body of a Muscle.

What is Fat ?

It is a soft Body made of the Unctuous and Sulphurous Part of the Blood.

What is the Derma or Skin ?

It is a Net-like Contexture, compos'd of Fibres Veins, Arteries, Lymphatick Vessels and Nerves which covers the whole Body, to defend it from the Injuries of the Air, and to serve as an universal Emunctory : It is very thin in the Face, sticking close to the Flesh, and is pierc'd with an infinite Number of imperceptible Pores, affording a Passage to insensible Transpiration.

What is the Epiderma, or Scarf-skin ?

It is a small fine Skin, transparent and insensible, having also innumerable Pores for the discharging of Sweat, and other Humours by imperceptible

perceptible Transpiration: It is extended over the whole inner Skin, to dull its too exquisite Sense, by covering the Extremities of the Nerves which are there terminated. It also renders the same Skin even and smooth, and so contributes very much to Beauty.

What is the Hair?

The Hair are certain hollow Filaments planted in the Glandules of the Skin, from whence their Nourishment is deriv'd. They are the Ornament of some Parts, cover those which Modesty requires to be conceal'd, and defend others from the Injury of the Weather.

What is a Nail?

The Nails are a Continuity of the Skin harden'd at the end of the Fingers, to strengthen and render them fit for Work.

C H A P. IV.

Of the General Division of a Humane Body.

HOW is the Humane Body divided before it is dissected, in order to Anatomical Demonstration?

Some Anatomists distinguish it into *Similar* and *Dissimilar* Parts, appropriating the former Denomination to all the simple Parts of the Body taken separately, as a Bone, a Vein, a Nerve, &c. but they attribute the Name of *Dissimilar* to all those Members that are compos'd of many *Similar* or *Simple* Parts together; such are the Arms, Legs,

Legs, Eyes, &c. wherein are contain'd all at once, Bones, Veins, Nerves, and other Parts.

Others divide it into *containing* and *contained* Parts, the former inclosing the others, as the Skull includes the Brain, and the Breast the Lungs ; whereas the contained Parts are shut up within others ; as the Entrails within the Belly, the Brain within the Skull, &c.

Others again divide the whole Body into *Spermatick* and *Sanguineous* Parts ; the former being those which are delineated in the first Formation ; and the latter those accessory ones which are made of the Nutriment supplied by the Blood.

Are there not also other Methods of dividing the Humane Body ?

Yes: Many Persons consider it as a *Contexture* of Bones, Flesh, Vessels and Entrails, which they explain in four several Treatises, whereof the first is called *Osteology*, for the Bones ; the second *Myology*, for the Muscles ; the third *Angiology*, for the Veins, Arteries and Nerves, which are the Vessels ; and the fourth *Splanchnology*, for the Entrails.

But lastly, the most clear and perspicuous of all the Divisions of the Body of Man, is that which compares it to a Tree, whereof the Trunk is the Body, and the Branches are the Arms and Legs. The Body is divided into three *Venters*, or great Cavities, *viz.* the Upper, the Middle, and the Lower, which are the Head, the Breast, and the lower Belly. The Arms are distributed into the Arms properly so called, the Cubit and Hands ; and the Legs in like Manner into Thighs, Legs, and Feet : The
Hands

Hands being also subdivided into the *Carpus* or Wrist, *Metacarpus* or back of the Hand, and the Fingers; as the Feet into the *Tarsus*, *Metatarsus* and Toes. This Division is at present follow'd in the Anatomical Schools.

CHAP. V.

Of the Skeleton.

WHY is Anatomy usually begun with the Demonstration of the Skeleton, or Contecture of Bones?

Because the Bones serve for the Foundation, Connexion, and Support of all other Parts of the Body.

What is the Skeleton?

It is a gathering together, or Conjunction of all the Bones of the Body almost in their natural Situation.

From whence are the principal Differences of the Bones derived?

They are taken from their Substance, Figure, Articulation, and Use.

How is all this to be understood?

First then, with respect to their Substance, there are some Bones harder than others; as those of the Legs compar'd with those of the Spine of the Back. Again, in regard of their Figure, some are long, as those of the Arm; and others short, as those of the *Metacarpus*. Some are also broad, as those of the Skull and Scapula.

pula or Shoulder-blades ; and others narrow, as the Ribs. But with respect to their Articulation, some are joined by thick Heads, which are received into large Cavities, as the Thigh bones with those of the Hips ; and others are united by the means of a simple Line, as the Chin-bones. Lastly, with relation to their Use ; some serve to support and carry the whole Body, as the Leg-bones, and others are appointed to grind the Meat, as the Teeth ; or else to form some Cavity, as the Skull-bone, and those of the Ribs.

What are the Parts to be distinguished in the Bones ?

They are the Body, the Ends, the Heads, the Neck, the *Apophyses*, or *Processes*, the *Epiphyses*, the *Condyli*-or Productions, the Cavities, the *Supercilia* or Lips, and the Ridges.

The Body is the greatest Part, and the middle of the Bone ; the Ends are the two Extremities ; the Heads are the great Protuberances at the Extremities ; the Neck is that Part which lies immediately under the Head, the *Apophyses* or *Processes* are certain Bunches or Knobs at the ends of the Bones, which constitute a Part of them ; the *Epiphyses* are Bones added to the Extremities of other Bones ; the *Condyli* or Productions are the small Elevations or Extuberances of the Bones ; the Cavities are certain Holes or hollow places ; the *Supercilia* or Lips are the Extremities of the Sides of a Cavity, which is at the End of a Bone ; the Ridges are the prominent and saliant Parts in the length of the Body of the Bone.

Now

How are the Bones joined together?

Two several Ways, viz. by *Articulation* and *Symphysis*.

How many sorts of Articulations are there in the Bones?

There are generally two Kinds, viz. *Diarthrosis* and *Synarthrosis*.

What is Diarthrosis?

Diarthrosis is a kind of Articulation which serves for sensible Motions.

How many Kinds of Diarthroses or great Motions are there?

There are three, viz. *Enarthrosis*, *Arthrodia*, and *Ginglymus*.

Enarthrosis is a kind of Articulation which unites two Bones with a great Head on one side, and a large Cavity on the other; as the Head of the Thigh-bone in the Cavity of the *Ischion* or Huckle-bone.

Arthrodia is a Sort of Articulation, by the means whereof two Bones are joined together with a flat Head receiv'd into a Cavity of a small Depth. Such is the Head of the Shoulder-bone with the Cavity of the *Scapula* or Shoulder-blade; and that of the twelfth *Vertebra* of the Back with the first of the Loins.

Ginglymus is a Kind of Articulation which unites two Bones, each whereof hath at their Ends a Head and a Cavity, whereby they both receive and are received at the same Time; such is the Articulation in the Bones of the Cubit and *Radius*, and the *Vetebrae*.

What is Synarthrosis?

Synarthrosis being opposite to *Diarthrosis*, is a close

close or compacted Articulation, destitute of any sensible Motion.

How many Sorts of Synarthroses, or close Articulations are there ?

There are three, viz. *Sutura*, *Harmonia*, and *Gomphosis*.

A *Suture* is that which joins together two Bones by a kind of Seam or Strich, or by a Connexion of their Extremities dispos'd in form of a Saw; the Teeth whereof are reciprocally let one into another : Such are the Sutures of the Skull-bones.

Harmonia is the uniting of two Bones by a simple Line ; as the Bone of the Cheek with that of the Jaw.

Gomphosis is a Kind of close Articulation, which unites two Bones after the Manner of Nails or Wooden Pins fixt in the Holes made to receive them : Such is that of the Teeth in their Sockets.

What is Symphysis ?

Symphysis is the uniting of two Bones by the interposition of a *Medium*, which ties them very strait together, being also threefold : Such is the Connexion of the *Rotula* to the Knee, and of the *Scapula* to the Arm-bone.

Are not these three Kinds of Articulations or Symphyses distinguish'd one from another ?

Yes ; for tho' they are all made by the means of a third Body intervening, which joins them together ; nevertheless every one of these various Bodies gives a different Denomination to its respective Articulation : Thus the Articulation which is caus'd by a Glutinous and Cartilaginous Substance, is properly call'd *Synchondrosis* ;

drofis; as that of the Nose, Chin, *Os Pubis*, &c. But an Articulation which is made by a Ligament, is term'd *Synneurosis*, as that of the Knee-joint. Lastly, that which is wrought by the means of Flesh, bears the Name of *Syffarcosis*; as the Jaw-bones, the *Os Hyoides*, and the *Scapula* or Shoulder-blade.

Have the Bones any Sense of Feeling or Motion?

They have neither; for their Sense of Pain proceeds from nothing else but their *Periosteum*, or the Membrane with which they are cover'd, and their Motion is perform'd only by the Muscles that draw them.

Doth the Marrow afford any Nutriment to the Bones?

No, all the Bones are nourish'd by the Blood, and the other Parts; but the Marrow is to the Bones what the Fat is to the Flesh; that is to say, it is a kind of Oil or Unctuous Substance, which moistens, and renders them less brittle.

Are all the Bones of the same Colour?

No, they follow the Temperament and Constitution of the Persons.

How many in Number are the Bones of the Human Skeleton?

There are two hundred and fifty usually reckon'd; viz. sixty one in the Head, sixty seven in the Trunk or Chest, sixty two in the Arms and Hands, and sixty in the Legs and Feet; but the true Number cannot be exactly determin'd, by reason that some Persons have more, and others fewer; for some have more *Ossa Sesamoidea* Teeth and Breast-bones than others: Again, some have many indentings in the *Lumboides* Suture, and others have none at all.

Can you rehearse the Number of the Bones in the Head?

There are fifteen in the Skull, and forty six in the Face.

The fifteen of the Skull are the *Coronal* for the Fore-part of the Head; the *Occipital* for the hinder-part; the two *Parietals* for the Upper-part and each Side; the two *Temporals* for the Temples; the *Os Sphenoides* or *Guneiforme*, which closeth the *Basis* or Bottom of the Skull; the *Os Ethmoides* or *Cribriforme*, situated at the Root of the Nose; and the four little Bones of the Ear on each Side; viz. the *Incus*, or Anvil; the *Stapes*, or Stirrup; the *Malleolus*, or Hammer; and the *Orbiculare*, or Orbicular Bone.

Of the forty six of the Face, twenty seven are counted in the Upper-Jaw, viz. the two *Zigomatick*, or the two Bones of the Cheek-Knots; the two *Lachrymal* in the great Corners of the Eyes toward the Nose; the two *Maxillar*, that receive the Upper-Teeth, and which form Part of the Palate of the Mouth, and the Orbits of the Eyes; the two Bones of the Nose; the two Palate Bones which are at its End, and behind the Nostrils; the last being single, is the *Vomer*, which makes the Division of the lower Part of the Nostrils; and there are generally sixteen Upper-Teeth. The Lower-Jaw contains nineteen Bones, viz. sixteen Teeth; two Bones that receive them; and the *Os Hyoides*, which is single, and fix'd at the Root of the Tongue.

How are the Teeth usually divided with respect to their Qualities?

Into

Into *Incisive* or Cutters, *Canine* or Dog-Teeth and *Molar* or Grinders. There are eight *Incisive* and four *Canine*, which have only one single Root; as also twenty *Molar*, every one whereof hath one, two, or three Roots.

Can you recite the Number of the Bones of the Trunk or Chest?

There are generally thirty and three in the *Spine* or Chin-bone of the Back, viz. seven *Vertebra's* in the Neck, twelve in the Back, five in the Legs, five, six, and sometime seven in the *Os Sacrum*, three or four in the *Coccyx*, and two *Cartilages* at its end.

There are twenty nine in the Breast, viz. twenty four *Ribs*, two *Clavicles* or Channel-bones, and commonly three Bones in the *Sternum*. The *Hip-bones* are likewise divided into three, viz. *Illon*, *Iscelion*, and *Os Pubis*.

Do you know the Number of the Bones of the Arms?

There are thirty and one Bones in each Arm, that is to say, the *Scapula* or Shoulder-blade; the *Humerus* or Shoulder-bone; the two Bones of the Elbow call'd *Ulna*, and *Radius*; eight little Bones in the *Carpus* or Wrist; five in the *Metacarpus* or back of the Hand; and fourteen in the Fingers, three in every one except the Thumb, which hath only two.

Can you give us a List of the Bones of the Legs in their Order?

There are thirty Bones in each Leg, viz. the *Femur* or great Thigh-bone, the *Knee-Pan* or *Rotula* on the Top of the Knee; the *Tibia*, greater *Fossile*, or Shin-bone; and the *Perone* or *Fibula*.

Fibula, or *lesser Fossile*, which are the two associated Bones of the Leg; seven little Bones in the *Tarsus*; five in the *Metatarsus*; and fourteen in the Toes; that is to say, three to every one, except the great Toe, which hath only two.

Thus the Number of Bones in the Humane *Skeleton* amounts to two hundred and fifty, without reckoning the *Sesamoidea*, the Interstitial Bones between the Sutures of the Skull, and some others, which are not always to be found.

CHAP. VI.

Of Myology, or the Anatomy of the Muscles of a Humane Body.

What is a Muscle?

It is the principal Organ or Instrument of Motion; or it is a Portion of Flesh, wherein there are Veins, Arteries, Nerves, and Fibres, and which is cover'd with a Membrane.

How many Parts are there in a Muscle?

Three, *viz.* the Head, the Belly, and the Tail: The Head is that Part through which the Nerve enters: The Belly is the Body or Middle of the Muscle; and the Tail is the Extremity, where all the Fibres of the Muscle are terminated to make the Tendon or String which is fasten'd to the Part whereto it gives Motion.

Have

Have all the Muscles their Fibres strait from the Head to the Tail ?

No, some have them strait, others transverse and others oblique or circular, according to the several Motions to which they are appropriated.

How many sorts of Muscles are there with respect to their Action ?

There are two different Kinds, viz. the *Antagonists* and the *Congenerate*; the former are those that produce opposite Motions; as a *Flexor*, and an *Extensor*, a *Depressor* and a *Levator*. The *Congenerate* are those that contribute to one and the same Action; as when there are two *Flexors* or two *Extensors*, and then one supplies the Defect of the other; whereas when one of the *Antagonist* Muscles is cut, the other becomes useless, and void of Action.

How is the Action of a Muscle perform'd ?

It is done by *Contraction* and *Extension*; the former causeth the *Antagonist* to swell, and the other compels it to stretch forth in length.

What is Aponeurosis ?

It is the continuity of the Fibres of a Tendon which makes a Connexion that serves to strengthen the Muscle in its Motion.

CH A

CHAP. VII.

Of the Myology, or Anatomy of the Muscles of the Head.

HOW many Muscles are there appointed to move the Head, and which be they?

The Head is mov'd by the means of fourteen Muscles, seven on each Side; of these, two serve to depress it, eight to lift it up, and four to turn round about.

The two Depressors are call'd *Sternaclinomastoides*; they take their Rise in the Sternum, at the Clavicles, and proceed oblique to joyn the *Apophysis Mastoides*,

Of the four Elevators on each Side, the first is the *Splenius*, which begins at the five *Vertebrae* of the Back, and the three lower ones of the Neck, and ascending obliquely cleaves to the hinder Part of the Head. The second, named *Complexus*, or *Trigeminus*, having its beginning as the *Splenius*, sticks in like manner to the hinder Part of the Head, and they form together a Figure resembling that of St. Andrew's Cross. The third is the *Rectus Major*, which proceeding from the second *Vertebra* of the Neck, shoots forward to join the hinder Part of the Head. The fourth is the *Rectus Minor*, which begins at the first *Vertebra* of the Neck, and ends likewise in the hinder Part of the Head.

The two Muscles on each Side, which move the Head circularly, are the *Obliquus Major* and *Minor*;

Minor ; the greater *Oblique* taking its rise from the second *Vertebra* of the Neck, goes to meet the first ; but the lesser *Oblique* hath its Origin in the hinder Part of the Head, and proceeds to join the other obliquely in the first *Vertebra*.

How many Muscles are there in the Lower-Jaw and which be they ?

The Lower-Jaw hath twelve Muscles which cause it to move ; that is to say, six on each side whereof four serve to close and two to open it.

The first of the Openers is the *Latus*, which beginning at the Top of the *Sternum*, *Clavicle* and *Acromion*, cleaves on the Out-side to the Bottom of the Lower-Jaw-bone. The second of the Openers is the *Digastricus*, which takes its rise in a Fissure lying between the Occipital-bone, and the *Apophysis Mastoidea*, from whence it passeth to the Bottom of the Chin on the In-side.

The first of the Shuttters is the *Crotaphiteus* or Temporal Muscle, which hath its Origin at the Bottom, and on the Side of the *Os Coronale*, *Os Parietale*, and the *Os Petrosum*, from whence it is extended till it cleaves to the *Processus Coronoides* of the Lower-Jaw, after having passed above the *Process* of the *Zigon*. Its Fibres spread from the Circumference to the Centre, and it is covered again with the *Pericranium* which renders its Wounds very dangerous ; that the least Incisions possible ought to be made therein.

The second is the *Pterygoideus* or *Aliformis* or *ternus*, whose rise is in the *Apophysis Pterygoidea* from whence it sets forward till it stick between the *Condylus* and the Coronal of the Lower-Jaw.

The third is the *Masseter*, which hath a twofold

from Rise or Beginning, and as many Infections; the first Rise thereof is at the Cheek-Knot or Ball in the Cheek, and the second at the lower Part of the Zygoma. The first Insertion is at the outer Corner of the Jaw, and the Second in the middle Part, by that means forming the Figure of the Letter X.

The fourth is the *Pterygoideus Aliformis Internus*, which hath its Beginning in the *Processus Pterygoides*, and is terminated in the inner Corner of the Jaw, so that Mastication or Chewing is performed by the means of these four Muscles.

How many Muscles are there in the Face, and what be they?

There are two for the Forehead, call'd *Frontalis*, whose Origin is in the upper Part of the Forehead, from whence they descend by straight Fibrils, until they terminate the Skin of the Forehead near the Eye-brows, where they are re-attached: Their Action or Office is to draw the Skin of the Forehead upward, whereto they stick when very close.

There are also two others call'd *Occipital*, which have their Beginning in the same Place with the preceding, but they descend backward, and cleave the Skin of the hinder Part of the Head, which they draw upward.

There are two Muscles to each Eye-lid, one whereof is termed the *Atollens* or *Elevator*, and the other the *Depressor*. The Elevator makes its Insertion in the bottom of the Orbit of the Eye, and is sustained by a large *Aponeurosis* to the Edge of the upper Eye-lid. The Shutter or Depressor, call'd the *Orbicular*, hath its Origin in the great *Canthus*, or Corner of the Eye, passeth over the Eye-

Eye-lid upward, and is join'd to the lesser Corner of the same Eye, being extended along its whole Compass.

The Eyes have each six Muscles, viz. four *Recti* and two *Obliqui*; the *Recti*, or strait Muscles are the *Elevator*, the *Depressor*, the *Adductor* and the *Abductor*. The first of these call'd *Elevator* or *Superbus*, draws the Eye upward, as it is pull'd downward by the *Depressor* or *Humilis*, the *Adductor* or *Bibitorius*, draws it toward the Nose, and the *Abductor* or *Indignatorius*, toward the Shoulder: All these small Muscles have their Originals and Insertions in the bottom of the Orbit, through which the Optick Nerve passeth, and are terminated in the Corneous Tunicle, by a very large Tendon.

The first of the Oblique ones is term'd the *Obliquus Major*, and the other *Obliquus Minor*, because they draw the Eye obliquely. These Muscles cause Children to squint when they do not act together. The *Obliquus Minor* is fastned to the outward Part of the Orbit near the greater Corner, and draws the Eye obliquely toward the Nose: But the *Obliquus Major* is fix'd in the inner Part of the Orbit, and ascends along the Bone to the upper Part of the great Corner, where its Tendon passeth through a small Cartilage nam'd *Trochlea*, and is inserted in the little Corner with the lesser *Obliquus Minor*, to draw the Eye obliquely toward the lesser Corner.

The Ear, altho' not usually endu'd with any sensible Motion, nevertheless hath four Muscles viz. one above, and three behind; the first being situated over the Temporal, and fastned to the Ear to draw it upward: The three others have

their

their beginning in the *Mammillary Process*, and terminated in the Root of the Ear, to draw it backward.

There are also three Muscles in the inner-part of the Ear, whereof the external belonging to the *Malleus* or Hammer lies under the exterior Part of the Bony Passage, which reacheth from the Ear to the Palate of the Mouth, being fix'd in a very oblique Sinuosity, which is made immediately above the Bone that bears the Furrow, into which is let the Skin of the *Tympanum* or Drum. The internal Muscle lies hid in a Bony Semi-Canal, in the *Os Petrosum*; one Part of which Semi-Canal is without the Drum, and is clos'd on the top with a Passage that leads from the Ear into the Palate. But the other Part within the Drum advanceth to the *Fenestra Ovalis*, and is inserted in the hinder Part of the Handle of the *Malleus*. The Muscle of the *Stapes* or Stirrup is also hid in a Bony Tube, almost at the bottom of the Drum, and fix'd in the Head of the *Stapes*.

The Nose hath seven Muscles, that is to say, one Common and six Proper: the Common constitutes part of the orbicular Muscle of the Lips, and draws the Nose downward with the Lip.

Of the six Proper Muscles of the Nose, four serve to dilate it, being situated on the Outside, and two to contract it, which are plac'd in the Inside.

The two first Dilaters of a Pyramidal Figure, take their rise in the Suture of the Forehead, and are fastned by a large Filament to the *Ale* of the Nose. The two other Dilaters resembling a Myrtle Leaf, have their rise in the Bone

of the Nose, and are inserted in the middle of the *Ala*.

The two Restrictors are Membranous, beginning in the internal Part of the Bone of the Nose, and adhering to the inner *Ala* of the Nostril.

The Lips have thirteen Muscles, viz. eight proper, and five common: Of the proper there are four for the Upper-lip, and as many for the Lower; with two common for each, and an odd one.

The first of the proper of the Upper-lip bears the Name of the *Incisivus*, its Origin being in the Jaw, in the Place of the Incisive Teeth, and its Insertion is in the Upper-lip.

The second is the *Triangularis*, Antagonist to the former; its Rise is on the outside, at the bottom of the lower Jaw; and it is implanted in the Upper-lip, near the corner of the Mouth.

The third being the *Quadratus*, springs from the bottom of the Chin before, and cleaves to the edge of the lower Lip.

The fourth is the *Caninus*, Antagonist to the *Quadratus*, beginning in the Upper-Jaw-bone, and being terminated in the Lower-lip near the corner of the Mouth.

The first of the common is the *Zygomaticus*, the Origin whereof is in the *Zygoma*, and its Insertion in the corner of the Mouth, to draw towards the Ear; so that it is this Muscle which acts when we laugh.

The second of the common is the *Buccinator* Trumpeter, which is swell'd when one sounds the Trumpet. It hath its Rise at the Root of the Molar Teeth of both the Jaws, and is extended quite round about the Lips.

The odd Muscle, or the thirteenth in Number; is the *Orbicular*, which makes a *Sphincter* round about the Lips to close or shut them up.

The *Uvula* or *Palate* of the Mouth hath four Muscles, whereof the two first are the *Peristaphylini Externi*, taking their Rise from the Upper Jaw, above the last Molar Tooth, and being ty'd to the *Palate* by a thin *Tendon*.

The two others are the *Peristaphylini Interni*, which have their beginning in the *Processus Pterygoideus* on the inside, and likewise stick to the *Palate*.

The *Tongue*, altho' all over Musculous and Fibrous, yet doth not cease to have its peculiar Muscles, which are eight in Number.

The first of these is called *Genioglossus*, taking its Rise in the lower part of the Chin, from whence it is extended till it cleave to the Root of the *Tongue* before, to draw it out of the Mouth.

The second is termed *Styloglossus*, its Rise being from *Processus Styloides*, whence it passeth to the side above the *Tongue*, to draw it up.

The third bearing the Name of *Basiglossus*, commenceth in the *Basis* or Root of the *Os Hyoides*, and thence insinuates it self into the Root of the *Tongue*, to draw it back to the bottom of the Mouth.

The fourth is the *Ceratoglossus*, deriving its Original from the Horn of the *Os Hyoides*, and cleaving to the side of the *Tongue* to draw it on one side: The Action of these Muscles of both sides together, causeth an Orbicular Motion in the *Tongue*. To these some add a fifth Part of Muscles, call'd *Myloglossus*, which serve to draw it obliquely upward.

What is the Action of the Os Hyoides in the Throat, and how many Muscles hath it ?

The Use of the *Os Hyoides* is to serve for a Support to the Root of the Tongue ; and it hath five Muscles on each Side, which keep it as it were tied to this Bone.

The first of these, call'd the *Geniohyoidæus*, hath its beginning in the Chin on the Inside, and adheres to the top of the *Os Hyoides*, which it draws upward.

The second is the *Mylohyoidæus*, whose Origin is in the inner Side of the Jaw, from whence it cleaves side-ways to the Root of the *Os Hyoides*, which it draws upward, and to one Side.

The third is the *Stylohyoidæus*, which, after it hath taken its rise in the *Apophysis Styloides*, is fastned to the Horn of the *Os Hyoides*, to draw it toward the Side.

The fourth is the *Coracohyoidæus*, which, springing up from the *Processus Coracoides* of the *Scapula*, cleaves to the Root and Side of the *Os Hyoides*, to draw it downward, and on one Side.

The fifth is the *Sternohyoidæus*, that hath its beginning from the Bone of the *Sternum* on the Inside, and is inserted into the Root of the *Os Hyoides*, which it draws downward.

How many Muscles hath the Larynx ?

There are thirteen, viz. four Common, and nine Proper. The first Pair of the Common is the *Sternothyroidæus* or *Bronchiæus*, which proceeding from the Inside, and the Top of the *Sternum*, ascends along the Cartilages of the Wind-Pipe, and is terminated in the bottom of the *Semihyaliformis* or Buckler-like Cartilage, which it draws downward.

downward. The second is the *Hyothyroidæus*, which arises from the Root of the *Os Hyoides*, and is inserted in that of the *Scutiforme*. This Muscle serves to lift up the *Larynx*, as also to dilate the bottom of the *Scutiformis*, and to close its top.

The first Pair of the Proper is the *Cricothyroidæus Anticus*, which, deriving its Original from the hinder and upper Part of the *Cricoides*, or Ring-like Cartilage, is fix'd in the upper and lateral Part of the *Scutiformis*, to close or shut it up.

The second is the *Thyroides*.

The third is the *Cricoarytenoidæus Lateralis*, which proceeds from the Side of the *Cricoides* within, and is fastned to the Bottom and Side of the *Arytenoides*, which it removes to dilate the Mouth of the *Larynx*.

The fourth is the *Thyroarytenoidæus*, which, arising from the Fore-part on the Inside of the *Scutiformis*, is terminated on the Side of the *Arytenoides*, to close the Orifice of the *Larynx*.

The fifth is the *Arytenoidæus*, which, having its Source in that Place where the *Cricoides* is united to the *Arytenoides*, is inserted in its upper and lateral Part, to close the *Larynx*.

How many Muscles hath the Pharynx?

It hath seven, the first whereof is the *Oesophagicus*, which takes its rise from the Side of the *Scutiformis* or Buckler-like Cartilage, and passing behind the *Oesophagus* or Gullet, is fastned to the other Side of the Cartilage. It thrusts the Meat down by closing up the *Pharynx* as a *Sphincter*.

The second named *Stylopharyngæus*, springs from within the Acute Process of the *Os Sphenoides*, or *Cuneiforme*, and is inserted obliquely

in the side of the *Pharynx*, which it dilates by drawing it upward.

The third, call'd *Sphenopharyngeus*, proceedeth from the *Apophysis Styloformis*, and is terminated in the Side of the *Pharynx*, which it dilates by drawing its Sides.

The fourth Pair is the *Cephalopharyngeus*, which ariseth from the articulation of the Head with the first *Vertebra*, and closeth the *Larynx*.

How many Muscles are there in the Neck, and which be they?

There are four Muscles in the Neck on each Side, viz. two Flexors, and two Extensors. The Flexors are the *Scalenus* and the *Rectus* or *Longus*, and the Extensors are the *Spinatus* and the *Transversalis*.

The *Scalenus* or *Triangularis* hath two remote Origins, viz. one from the first Rib, and the other from the Clavicle, and is fastned to the third and fourth *Vertebra* of the Neck.

The *Rectus* or *Longus* begins in the side of the four upper *Vertebrae* of the Back, and is join'd to the upper *Vertebra* of the Neck, and the hinder Part of the Head.

The *Spinatus* hath its Origin from the fourth and fifth upper *Vertebrae* of the Back, and is fastned to all the lower *Vertebrae* of the Neck.

The *Transversalis* springs forth out of the upper *Vertebrae* of the Back, and cleaves to the extremity of the four *Vertebrae* of the Neck.

C H A P. VIII.

A Parallel between the Diseases of the Bones and the Fleſhy Parts.

It is no great Wonder to ſee the Bones ſubject to the ſame Diſeaſes with the Fleſh and ſoft Parts, ſince they only differ in their Solidity. The Bones are compoſed of Fibres, Veins, Arteries, Tendons and Membranes, as well as the Fleſh.

If the Bones of new-born Animals are broken, Blood will iſſue out, which proves they have Blood-Veſſels. In Adult Perſons too there are ſeveral ſmall Holes through which the Arteries and Veins paſs which penetrate the interior Part of the Bone, into which the little Arteries filtrate the moſt ſoft and Balfamick Parts of the Blood, which is called Marrow; and this is carried back by the Veins into the Bones to make them ſupple, pliant, and leſs brittle, and into the Maſs of Blood, to ſmooth the Acids, and ſweeten it.

The Tendons of the Muſcles are faſtened not only to the Bones, but are farther inſerted into their inmoſt Parts, and may be ſaid only to be a Continuity of them, ſince the Proceſſes to which they are faſtened, are ſoft and Tendinous in Abortion, and require time to harden into Bone.

The Bones of all Abortive Animals are ſoft like Skins, and are Fibrous and Membranous: Some Years ſince a Woman died in the *Hotel-Dieu*,

whose Bones, which are still kept by *M. Saurard* Master Surgeon of *Paris*, are exceeding soft. While she was living they were so limber they might be bent any ways. These Instances shew that Fibres and Membranes enter into the Composition of Bones.

It is no longer a Wonder then, that Bones should be subject to the same Diseases as Flesh, since both are compos'd of the same Parts.

The fleshy Parts are subject to a Mortification, become Livid, Yellow, turn Black by degrees, and the Parts separate.

This is remedy'd by applying Compresses dip't in some Spirituous Liquor, to recal Heat and Spirits into the Parts which begin to mortifie, having first scarify'd the Place that they may pierce deeper.

The Bones are subject to a *Caries*. This Disease is a true Gangrene. Consider how they become yellow, blacken by degrees, are full of small Holes, as if Worm-eaten; which Malady is more difficult to cure, the more inveterate it is.

All these Accidents are in a Gangrene; and the Cure of both is the same: That is, by applying Tepledgits dip't in Brandy, Spirit of Wine, Oyl of *Guaiacum*, Oyl of Cloves, and rasping the Bone, so that these Spirituous Remedies may the better insinuate themselves.

The fleshy Parts are subject to a *Sphacelus*, or compleat Mortification. They are black, rotten, emit a *Sanies*, and send forth a Cadaverous Stench. This fierce Disease admits no other Remedy but the Knife and actual Cautery. Yet one must remove the Flesh, and after make an Amputation of the Part.

The Bones are Sphacelated likewise, become black on the Inside, and there comes away a stinking *Sanies*; they are only treated with the Knife and Fire: If this will not do, the Limb must be taken off.

The fleshy Parts are subject to Ulcers, that is, to Tumours which have a stinking *Sanies* flowing from them,

The same Disease happens to the Bones. Those who have rotten Teeth are too well convinc'd of the Truth of this from the insupportable Stench and ill Taste in their Mouths.

The fleshy Parts are attack'd with *Cancers*.

The Bones are also subject to this fierce Disease. I shall mention one Instance taken out of the *Miscellanea curiosa*. There came forth a large black Tooth on the left Side of the Mouth in a Child of a Year old, whose Habit of Body was meagre, and Skin something discolour'd. The Parents, though surpriz'd at first, yet finding the Child suffer'd no Inconvenience, though it continu'd so for a whole Twelvemonth, neglected to shew it. But perceiving that all the other Teeth which came out were black, they call'd in a Surgeon, who not understanding the Nature of the Distemper, scarify'd the Swelling on the Gum, which ulcerated the Gum and whole Cheek. This oblig'd the Relations to call in a Physician; who found this Swelling was Cancerous, and had been irritated by the sharpness of the Remedies which had made a foul stinking Ulcer, horrible to behold. The Physician prescrib'd a cooling and moist Diet upon account of the Hective Fever, and order'd some Lotions for the Mouth. This Cancer extended quite to the Temporal Muscle;

and Convulsions ensued, which kill'd the Child. This *Cancer*, which had its Root in one Tooth only, extended it self pretty far without doing any Damage to the other Teeth. The Bones then are subject to *Cancers* as well as the Flesh.

Ruptures are Dislocations of the Intestines, which sometimes happen in one, and at other times in other Parts. For curing them you must reduce the Parts into their natural Place, and keep them in it by Bandages.

The Bones are subject to the same Diseases: their Displacing or Luxation happen sometimes to one Part and sometimes to another. For the curing them you must put them into their natural Place, and keep them in with Bandages.

Contusions and Bruises happen to the Flesh, and you are sometimes oblig'd to suppurate them to separate the bruised Flesh from the sound.

When the Bones have receiv'd some violent blow their Fibres cling together and start out of their Places, and by this means grow black and carious. For the remedying this you often are oblig'd to exfoliate and separate the corrupted from the sound Part.

The Exfoliation may be look'd on as Suppuration of the Bones.

The fleshy Parts are glew'd together as the Fingers and other Parts after great Burns.

And this is often too true, that Bones do the same, as happens in *Anchyloses*, when a Limb is left too long in the same Posture without bending or extension.

Fleshy Parts are seiz'd with *Erysipela's*, that is superficial Swellings, which are produc'd by a subtil and volatile Acid, which makes a Feverish Efflu-

Effervescence with the Volatile Salt of the Mass of Blood, and extends a pretty way over the Skin, where it coagulates the Blood in the external Vessels, and disposes it to a Stagnation.

To cure these Swellings, the proper Remedies are Diaphoreticks, Volatile Spirits of Hartshorn, Diaphoretick Antimony, using outwardly the Decoction of Myrrh, Male Frankincense, made in Wine with a little Camphire, Spirit of Wine alone, or with a little Camphire or Saffron to foment the *Erysipela's*, and other Resolvents.

Exostoses in Bones are of a like Nature. There are Bones distended and swoln by the lodging of Humours, which filter through the Channels of the Bones, and insinuate themselves into their Substance. For the curing these Diseases, the most proper internal Remedies are Diaphoreticks and Volatile Spirits, and the most proper external ones are Resolvents.

The fleshy Parts have Abscesses and Tumours, and

The Bones are subject to Swellings, as we see in the Rickers.

The fleshy Parts are divided and broken by Falls and Blows. To cure these it is necessary to re-unite the Lips of the Wounds by binding them up, or promote the Generation of new Flesh there be a loss of Substance.

It happens but too often that the Bones are broken. And then the Ends must be brought together; and that they may agglutinate, must be kept in this Posture; and if there be a loss of Substance, there must be Time allow'd for the Bone to grow and fill up the Interstices, as happens

pens to Bones of the Head after Trepanning.

When the fleshy Parts have receiv'd any Blow, the Lips of the Wound recede so far from one another, that it is difficult to bring them together.

The Bones too sometimes suffer Divulsions, as the *Tibia* from the *Perone*, and the *Cubit* from the *Radius*.

The fleshy Parts sometimes sink down, and often the Nipple falls so deep into the Breast, that it hinders the Woman from giving suck.

The Bones are deprest likewise, which happens to those whose Bones continue tender and soft, which often have Depressions without breaking. I shall mention some Examples of this out of *Fabricius Hildanus*.

He tells us, *Cent. 3. Obs. 12.* That he had seen an Infant of ten Years old who had a great Depression on the Occipital Bone by a Fall. There arising no dangerous Accidents, the Parents neglected to have Care taken of the Wound. The Child by degrees lost both its Memory and Judgment. Though before its Fall it had a deal of Wit, it could not after follow its Studies, or learn any Trade, and at 36 Years of Age became entirely stupid.

The same Author relates farther, that a Child of three Years of Age fell on its Forehead, and made a Depression of the Bone, large enough to put the end of the little Finger into. All the Remedy us'd, was a Compress dipt in Spirit of Wine, and laid on the Wound; which was renew'd every Day: The Infant was cur'd, and suffer'd no Inconvenience. These Examples shew

that Bones suffer a Depression as well as Flesh. And farther they evince, that all the Functions of the Soul are not perform'd in all Parts of the Brain, since the former became wholly incapable of all Learning, nay wholly stupid, while the other suffer'd no remarkable Accident.

The fleshy Parts lessen their Bulk, and the Body grows lean.

The Bones grow lean too, and are much less'n'd. I shall give you a surprizing Instance. A certain Person having a continu'd Pox, his Bones became so weak and slender that he broke his Arm by lifting a five or six Pound Weight. When we examine the Bones of such as have dy'd of the Pox, we find them all corroded within, and extremely slender. These Examples shew us that the Bones waste as well as the Flesh.

Let any Man, if he pleases, examine all the Diseases which happen to the fleshy Parts, and he will find they happen to the Bones likewise, and are to be treated in the same manner.

This is most of what I could gather from the learned Parallel of the Diseases of the fleshy Parts and the Bones made by the famous M. *Arnaud* in the stately Amphitheatre of St. *Cosmus*, but which no more represents the Discourse of that skilful Operator, than Shadows do Sun-shine, or Copies an Original.

C H A P.

C H A P. IX.

Of the Myology or Anatomy of the Muscles of the Trunk ; or of the Breast, Belly, and Back.

HOW many Muscles are there in the Breast, and which be they ?

The Breast hath fifty seven Muscles, that is to say, thirty that serve to dilate it, twenty six whose Office is to contract it, and the *Diaphragm* or *Midriff* which partakes of both Actions.

The thirty which dilate the Breast are equally plac'd on both Sides, to the Number of fifteen on each, *viz.* the *Subclavius*, the *Serratus Major Anticus*, the two *Serrati Postici*, and the eleven external *Intercostals*.

The twenty six which contract the Breast are likewise equally rank'd to the Number of thirteen on each Side ; *viz.* the *Triangularis*, the *Sacrolumbus*, and eleven internal *Intercostals*.

The *Subclavian* takes up the whole Space between the *Clavicle* and the first Rib : Its Original being from the internal and lower Part of the *Clavicula*, and its Insertion in the upper Part of the first Rib.

The *Serratus Major* is a large Muscle, having seven or eight Indentings or Jaggs. It makes its rise from the interior Basis of the *Scapula* or *Shoulder-blade*, and its Jaggings are inserted in

the five lower true Ribs, as also in the two upper spurious Ribs.

The *Serratus Posticus Superior*, begins with a large *Aponeurosis* in the Processes of the three lower *Vertebrae* of the Neck, and of the first of those of the Back; then passing under the *Rhomboid*, it is join'd obliquely by four Indentings to the four upper Ribs.

The *Serratus Posticus Inferior*, commenceth in like manner with a large *Aponeurosis* from the Processes of the three lower *Vertebrae* of the Back, and of the first of those of the Loins, and is afterwards fastned by four Digitations to the four lower Ribs.

The eleven *External Intercostal* Muscles are situated in the Spaces between the twelve Ribs, passing obliquely and on the outside from the back Part to the fore Part. They take their Rise below the upper Rib, and have their Insertion above the lower Rib.

The *Triangularis* is the first of those that contract the Breast, and possesseth the inward Part of the *Sternum*: Its Original is from its lower Part, and its Insertion in the top of the Cartilages of the two upper Ribs.

The *Sacrolumbus* hath its rise in the hinder Part of the *Os Sacrum*, as also from the *Vertebrae* of the Loins, and ascending from thence, insinuates it self into the hinder Part of the Ribs, to every one of which it imparts two *Tendons*, one whereof adheres on the outside, and the other on the inside. This Muscle is fleshy within, and fibrous without.

The eleven *Internal Intercostals*, contrary to the *External*, derive their Original from the top

top of every Lower-Rib, and ascend obliquely from the Back-part to the Fore-part, till they are join'd to the lower Edge of every upper Rib: Thus these Internal Muscles, with the External, Form, by the opposition of their Fibres, a Figure resembling a *St. Andrew's Cross*.

The Diaphragm or Midriff is esteem'd as the fifty seventh Muscle of the Breast, and serves as well for its dilatation as contraction. It separates the *Thorax* or Chest from the lower Belly, and is ty'd circularly to all the Extremities of the Bastard Ribs, immediately under the *Xiphoides*, or Sword-like Cartilage.

Modern Anatomists have discover'd that the Diaphragm is compos'd of two Muscles, viz. one Upper, and the other Lower; so that the Upper cleaves to the Extremities of the Spurious Ribs, and is terminated in a flat Tendon in the Middle, which hath been always taken for its Nervous Part. The Lower begins with two Productions, the Longest whereof being on the Right-side, ariseth from the three upper *Vertebrae* of the Loins, and the other on the Left from the two *Vertebrae* of the Back, till it is lost in the *Aponeurosis* of the Upper Muscle.

How many Muscles are there in the Back and the Loins, and which be they?

There are three on each Side, viz. one for Flexion, and the other for Extension.

The *Triangularis* is the *Flexor*, taking its rise in the hinder Part of the Rib of the *Os Ilium*, and the inner Part of the *Os Sacrum*, in passing from whence it is join'd to the last of the Bastard

stand Ribs, and to the transverse Productions of the *Vertebrae* of the Loins.

The *Extensors* are the *Sacer*, and the *Semi-spinatus*, which make the Waste strait, and are so interwoven along the Back-bone, that one would imagine that there were as many Pairs of Muscles as *Vertebrae*, affording *Tendons* to all.

The *Sacer* springs from behind the *Os Sacrum*, as also from the hinder and upper Extremity of the *Os Ilium*, and is inserted in the Spines of the *Vertebrae* of the Loins and Back.

The *Semi-spinatus* hath its rise from the Spines of the *Os Sacrum*, and is join'd to all the transverse Productions of the *Vertebrae* from the Back to the Neck, being exactly situated between the *Sacer* and the *Sacrolumbus*.

CHAP. X.

Of the Myology, or Anatomy of the Muscles of the Lower-Belly.

How many Muscles are there in the lower Belly, and which be they?

There are generally ten, five on each Side, that is to say, two *Obliqui*, one ascending, and the other descending; one *Transversus*, one *Rectus*, and two *Pyramidal*, of which last, nevertheless there is sometimes only one, and sometimes none at all.

The

The *Obliquus Descendens*, which is the first, hath its Original by Digitation from the sixth and seventh of the true Ribs, from all the spurious Ribs, and the transverse Processes of the *Vertebrae* of the Loins, and comes near to the *Serratus Major Anticus* of the Breast; from whence it proceeds to the external Ridge of the *Os Ilium*, and is terminated by a large *Aponeurosis* in the *Linea Alba* or *White Line*, which separates the Muscles that are on each side of the *Abdomen* or lower Belly.

The *Obliquus Ascendens* ariseth from the upper Part of the *Os Pubis*, and the Ridge of the Hip-Bone or *Ilium*, till it cleaves to the Processes of the *Vertebrae* of the Loins, the Extremities of all the Ribs, and from the *Xiphoides* or Sword-like Cartilage, and is terminated in the *White Line* by a large *Aponeurosis*.

The *Rectus* being situated between the *Aponeurosis* of the *Obliquus*, takes its rise from the Cartilages of the Ribs, the *Xiphoides* and the *Sternum*, and enters into the *Os Pubis*, having many Nervous Parts to corroborate it in its length.

The *Transversus*, having its beginning in the transverse Apophyses of the *Vertebrae* of the Loins, is fastned to the internal Rib of the *Os Ilium*, and within the Cartilages of the lower Ribs, and is terminated by a large *Aponeurosis* in the *Linea Alba*, passing over the *Rectus*, and sticking to the *Peritonaeum*.

The Oblique Muscles, and the Transverse, have Holes toward the Groin, to give Passage to the Spermatick Vessels of Men, and to the round

Liga-

Ligament of the Womb in Women; here it is that Ruptures or Burstness happen in both Sexes, although the Holes of these three Muscles are not situated one over against another.

The Pyramidal, so named by reason of its Figure, is situated in the lower Tendon of the *Rectus*, its Origin being in the upper and external Part of the *Os Pubis*; but it is terminated in the white Line, three Fingers breadth above the *Pubes*, and sometimes even in the Navel it self. These Muscles are not found in all Bodies, for there are sometimes two, sometimes only one, and sometimes none.

The use of the Muscles of the lower Belly is to compress all the contain'd Parts, in order to assist them in expelling the Excrements.

How many Muscles are there in the Testicles?

They have each of them one, call'd *Cremaster*; This Muscle takes its rise from the Ligaments of the *Os Pubis*, and by the dilation of its Tendon covers the Testicle, which it draws upward.

How many Muscles hath the Penis?

It hath two Pair, viz. the *Erectores* or *Director*, and the *Dilatantes*: The *Erectores* arise from the internal Part of the *Os Ischion*, under the beginning of the *Corpora Cavernosa*, where they are inserted, and retake their Fibres in their Membranes. The *Dilatantes* or *Acceleratores* have their Source in the *Sphincter* of the *Anus*, and slipping from thence obliquely under the *Ureter*, are join'd to the Membrane of the nervous Bodies.

How many Muscles are there in the Clitoris?

It hath two Erectors which spring forth from the

the Protuberance of the *Os Ischion*, and are inserted in the Nervous Bodies of the *Clitoris*. There are also two others suppos'd to be its Elevators, which proceed from the *Sphincter* of the *Anus*, and are terminated in the *Clitoris*.

How many Muscles are there in the Anus?

There are three, viz. the *Sphincter*, and two *Levatores*. The *Sphincter* is two Fingers broad, to open and close the *Rectum*. This Muscle being double, is fastned in the Fore-part to the *Penis* in Men, and to the Neck of the Womb in Women, as also behind to the *Coccyx*, and laterally to the Ligaments of the *Os Sacrum*, and the Hips.

The two *Levatores* arise from the inner and lateral Part of the *Os Ischion*, and are fastned to the *Sphincter* of the *Anus*, to lift it up after the expulsion of the Excrements.

The *Bladder* hath also a *Sphincter* Muscle to open and shut its Orifice.

C H A P. XL

Of the Muscles of the Scapulæ, or Shoulder-Blades, Arms, and Hands.

HOW many Ways doth the Scapula or Shoulder-Blade move, and what are its Muscles?

The *Scapula* moves upward, downward, forward and backward, by the Means of four proper Muscles, which are the *Trapezius*, the *Rhom-*

Rhomboides, the proper *Levator*, and the lesser *Pectoral*, or *Serratus Minor Anticus*.

The *Trapezius* or *Cucullaris* hath its beginning from the back Part of the *Occiput*, or hinder Part of the Head, from the Spines of the six lower *Vertebrae* of the Neck, and of the nine upper of the Back, in passing from whence it is implanted in the Spine of the Processes or Shoulder-Blade, and the external Part of the *Clavicula*, as far as the *Acromion*. This Muscle produceth many Motions by reason of its different Fibres, drawing the Shoulder-Blade obliquely, upward, downward, and forward.

The *Rhomboides* is situated over the *Trapezius*; its rise being in the Processes of the three lower *Vertebrae* of the Neck, and of the three upper of the Back, but it is afterward join'd to the whole *Basis* or Root of the *Scapula*, which it draws backward.

The proper *Levator* commenceth in the *Transverse* Processes of the four first *Vertebrae* of the Neck, by different Progressions, but is afterward re-united, and inserted in the upper Corner of the *Scapula*, which it draws upward.

The lesser *Pectoral*, or *Serratus Minor Anticus*, is situated under the great *Pectoral*, its rise being by Digitation or Indenting in the second, third, and fourth of the upper Ribs, and its Insertion in the *Processus Coracoides* of the Shoulder-Blade, which it draws forward.

How many Motions are there in the *Humerus*, or *Arm*, which be they, and what are its Muscles?

The

The Arm performs all sorts of Motions by the help of nine Muscles: For it is lifted up by the *Deltoides* and the *Infra-Spinatus*; it is depress'd by the *Largissimus*, and the *Rotundus Major*; it is drawn forward by the *Pectoralis Major*; and the *Coracoideus*; it is drawn backward by the *Infra-Spinatus*, and the *Rotundus Minor*: It is drawn near to the Ribs by the *Subscapularis*, and its circular Motion is performed when all these Muscles act together successively.

The *Deltoides* or *Triangular* hath its beginning from the whole Spine of the *Scapula*, the *Acromion*, and half the *Scapula*, and by its point cleaves with a strong Tendon to the middle of the Arm.

The *Infra-Spinatus* takes its rise in the Cavity that lies above the Spine of the *Scapula*, which it fills, passing over the *Acromion*, until it is join'd to the Neck of the Shoulder-bone, which it surrounds with a large Tendon.

The *Largissimus*, otherwise call'd *Ani-Scalptus*, covers almost the whole Back, proceeding from a large and nervous Stock, in the third and fourth lower *Vertebrae* of the Back; the five *Vertebrae* of the Loins, the Spine of the *Os Sacrum*, the hinder part of the Ridge of the *Os Ilion*, and the external part of the lower bastard Ribs, in passing from whence it insinuates it self into the lower Corner of the *Scapula*, as also into the upper and inner part of the *Humerus*.

The *Rotundus Major*, or *Teres Major*, having its Origin from the external Cavity of the lower corner of the *Scapula*, is confounded with the *Largissimus*, and adheres with it by the same

Tendon

Tendon to the upper and inner Part of the *Humerus*, a little below the Head.

The greater *Pectoral* hath its Source from half the *Clavicula*, on the side of the *Sternum*; covers the fore-part of the Breast, and is fastned by a short, broad and nervous Tendon to the top of the Shoulder-bone, on the inside, between the *Biceps* and the *Deltoides*.

The *Coracoideus* or *Coracobrachialis*, beginning from the *Processus Coracoides* of the *Scapula* or Shoulder-blade adheres to the middle of the Arm on the inside, which with the *Pectoral* it draws forward.

The *Infra-Spinatus* fills the Cavity which lies below the Spine of the *Scapula*, its Origin being from the lower side of the *Scapula*, from whence it passeth between the Spine and the *Rotundus Minor*, to cleave to the Neck of the Shoulder-bone, which it embraceth, and draws backward.

The *Rotundus Minor*, or *Teres Minor*, proceeds from the lower side of the *Scapula*, and adheres to the Neck of the Shoulder-bone with the *Infra-Spinatus*, to draw it in like manner backward.

The *Sub-scapularis* or *Immersus* is situated entirely under the *Scapula*, proceeding from the internal side of the *Basis* or Root of the same, and being terminated in the Neck of the Arm-bone, which it causeth to lie close to the Ribs.

How many Motions are there in the Cubitus or lower Arm, and what are its Muscles?

The *Cubitus* or *Ulna* is endued with two sorts of Motions, viz. that of Flexion, and that of

Ex.

Extension, the former being perform'd by the help of two Muscles, that is to say, the *Biceps* and the *Brachieus Internus*; and the latter by eight others, which are the *Longus*, the *Brevis*, the *Brachieus Externus*, and the *Anconius*.

The *Biceps* is a Muscle with two Heads, one whereof proceeds from the *Processus Coracoideus* and the other from the Cartilaginous edge of the *Glenoid Cavity* of the Shoulder-Blade: These two Heads descend along the fore-part of the Arm, and are united in one and the same Body from whence springs forth a Ligament, which is inserted in a tuberosity situated in the upper and fore-part of the *Radius*.

The *Brachieus Internus* is a small fleshy Muscle, lying hid under the *Biceps*, which takes its rise from the upper and fore-part of the *Humerus* and is implanted in the upper and inner part of the *Radius*, to bend the Elbow with the *Biceps*.

The first of the four Extenders is the *Longus* having two Origins, viz. one from the corner Side of the *Scapula* near its Neck, and the other descending to the hinder-part of the Arm, till it is ty'd to the *Olecranon* or *Ancon*, by a strong *Aponeurosis*, which is common thereto, with the *Brevis*, and the *Brachieus Externus*.

The *Brevis* or short Muscle of the Cubit, arising from the hinder and upper-part of the *Humerus*, is fastned to the *Olecranon* with the *Longus*.

The *Brachieus Externus* is a fleshy Muscle which proceeds from the hinder-part of the *Humerus* and adheres to the *Olecranon* with the *Brevis* and the *Longus*.

The *Anconeus* or *Cubitalis* being situated behind the Fold of the *Cubitus*, is the least Muscle of all; it springs from the Extremity of the Arm-Bone, at the end of the *Brevis* and the *Longus*, and in descending is inserted between the *Radius* and the *Cubitus* or *Ulna*, three or four Fingers breadth below the *Olecranon*.

How many Muscles hath the *Radius*, and what are its Motions?

The *Radius* is endu'd with a two-fold Motion, by the Means of four Muscles: Of these the *Rotundus* and *Quadratus* cause that of *Pronation*, as the *Longus* and the *Brevis* that of *Supination*.

The *Pronator Superior Rotundus*, or round Muscle of the *Radius*, commenceth from the inner Process of the Shoulder-Bone, in a very fleshy Stock, and is terminated obliquely by a Membranous Tendon in the middle and exterior Part of the *Radius*.

The *Pronator Inferior Quadratus*, springing forth from the Bottom and Inside of the *Cubitus*, is fix'd in the lower and outward Part of the *Radius* by a Tail as large as its Head. This Muscle lying hid under the others near the Wrist, is that which jointly with the *Rotundus*, turns the Arm with the Palm of the Hand downward; which is the Motion of *Pronation*.

The *Longus* is the first of the *Supinators*, whose Origin is three or four Fingers breadth above the external Process of the Arm-Bone; from whence it passeth along the *Radius*, and cleaves to the inner Part of its lower Process.

The *Brevis*, or the second of the *Supinators*, arising from the lower Part of the *Inferior Condylus*,

lus, and the external of the *Humerus*, is twisted round about the *Radius*, going forward from the hinder-part till it is united to its upper and forward part. This Muscle, with the *Longus*, serves to turn the Arm and the Palm of the Hand upward and produceth the Motion of *Supination*.

How many Sorts of Motions belong to the Wrist and what are its Muscles?

Two several Motions are perform'd by the Wrist, *viz.* one of Flexion, and the other of Extension, three Muscles being appropriated to the Former, and as many to the Latter: But ought to be observ'd, that a strong Ligament call'd the *Annular*, appears here, which surrounding all the Tendons of the Muscles as it were a Bracelet, holds them together, and elsewhere serves to unite the two Bones of the Cubit. There are three Flexors or bending Muscles of the Wrist, the *Cubiteus Internus*, the *Radius Internus*, and the *Palmaris*.

The *Cubiteus Internus* derives its Original from the Part of the Arm-bone, passeth under the Annular Ligament, and is ty'd by a thick Tendon to the small Bone of the Wrist, which is placed above the others.

The *Radius Internus* proceeds from the same Place with the *Cubiteus*, and is fastned to the Wrist-bone which supports the Thumb. It runs along the *Radius*, and passeth under the Annular Ligament.

The *Palmaris* is reckon'd among the Flexors of the Wrist, although situated in the Palm of the Hand. It ariseth from the inner Process or Knot of the Arm-bone, and is united by a large Tendon to the first Phalanges of the Fingers,

ping under the Transverse or *Annular* Ligament, and cleaving under the Skin of the Palm of the Hand.

The three extending Muscles of the Wrist are the *Cubitæus Externus*, and the *Radiceus Externus*, or the *Longus*, and the *Brevis*.

The *Cubitæus Externus*, taking its rise from the hinder Part of the Cubit, passeth under the *Annular* Ligament, and adheres to the upper and outward Part of the Bone of the *Metacarpus* that stayeth the little Finger.

The *Radiceus Externus*, or the *Longus*, having its Origin from the edge of the lower Part of the Arm-Bone, slides from thence along the *Radius* on the Outside, extends it self under the *Annular* Ligament, and cleaves to the Wrist-Bone, which stays the Fore-finger.

The *Brevis* or short Muscle of the Wrist springs from the lower Part of the same Edge; afterward it runs along the *Radius*, passeth under the *Annular* Ligament, and is terminated in the Bone of the *Carpus* or Wrist, which stays the middle Finger. But we must take Notice, that besides these six Muscles, there is also *Caro quadam quadrata*, or a square Piece of Flesh under the *Palmaris* which seems to arise from the *Thenar*, and cleaves to the eighth Wrist Bone. It is suppos'd that this musculous piece of Flesh serves with the *Hypothenar* of the little Finger, to make that which is call'd *Diogenes's Cup*.

How many Motions are there in the Fingers, and what art their Muscles?

The Fingers are bent, extended, and turn'd from one Side to the other by the means of twenty three Muscles, whereof ten are proper, and

thirteen common: The former are those that serve all the Fingers in general, and the other those that are particularly serviceable to some of them: The common are the *Sublimis*, the *Profundus*, the common *Extensor*, the four *Lumbricales*, and the six *Interossei*.

The *Sublimis*, or *Perforatus*, arising from the internal Part of the lower Process of the *Humerus* or Shoulder-Bone, is divided into four *Tendons*, which run below the *Annular Ligament* of the Wrist, and are inserted in the second *Phalanx* of the Bones of the four Fingers, after cleaving; they pass along to those of the first *Phalanx*, help to bend it. It is also observ'd that every one of these *Tendons* hath a small Cleft in its Length, to let in the *Tendons* of the *Profundus*.

The *Profundus* or *Perforans* lies under the *Sublimis*, deriving its Original from the top of the *Cubitus* and *Radius*. It creeps along these two Bones, and is divided into four *Tendons*, which pass under the *Annular Ligament*, and slip in the Fissures of the *Tendons* of the *Sublimis* to adhere to the third *Phalanx* of the Fingers, which they bend with the *Sublimis*: So that the two Muscles make together the bending of the Fingers.

The *Extensor Magnus* is that which extends the four Fingers. It springs from the external and lower Process of the Arm-Bone, and is divided into four flat *Tendons*, which pass under the *Annular Ligament*, and cleave to the second and third *Phalanx* of the Fingers.

The four *Lumbricales* or *Vermiculares* are in the Palm of the Hand, to draw the Fingers to the Thumb: They proceed from the *Tendons* of the *Profundus*, and the *Annular Ligament*, extend themselves along the Sides of the Fingers, and are inserted into their second Articulation, to draw them toward the Thumb.

The three *Interossei Interni*, and the three *Externi*, are situated between the four Bones of the *Metacarpus*, as well on the Inside of the Hand, as without: They have their beginning in the Intervals or Spaces between the Bones of the *Metacarpus*, are united with the *Lumbrical*, and fix'd in the last Articulation of the Bones of the Fingers, to produce the Motion of drawing back or removing from the Thumb.

The Thumb is mov'd by five particular Muscles; one whereof serves to bend it, two to extend it, one to remove it from the Fingers, and another to draw it to them.

The *Flexor* of the Thumb takes its rise from the upper and inner Part of the *Radius*, passeth under the *Annular Ligament*, as also under the *Tenar*, and adheres to the first and second Bone of the same Thumb to bend it.

The two *Extensors* of the Thumb are the *Longior* and the *Brevior*: The former proceeding from the upper and outward Part of the *Cubitus*, ascends above the *Radius*, and is ty'd with a forked Tendon to the second Bone of the Thumb. The *Brevior* hath the same Origin with the *Longior*, keeps the same Track, passeth under the *Annular Ligament*, and is terminated in the third Thumb-Bone.

The *Thenar* removes the Thumb from the Fingers, and forms that Part which is call'd the *Mount of Venus*: It hath its rise from the first Bone of the *Carpus* or Wrist, and the *Annular* Ligament, and is inserted in its second Bone.

The *Antithenar* draws the Thumb to the other Fingers, having its Origin in the Bone of the *Metacarpus*, that stays the middle Finger, and its Motion is in the first Bone of the Thumb.

The Muscle which serves to extend the Fore-finger, is call'd *Indicator*: It proceeds from the middle and outer Part of the *Cubitus*, and is fast by a double *Tendon* in the second Articulation of the Fore-finger, as also in the *Tendon* of the great *Extensor* of the Fingers.

That which draws the Fore-finger to the Thumb is term'd *Adductor*: It commenceth in the Fore-part of the first Thumb-bone, and is terminated in the Bones of the Fore-finger.

That which removes the Fore-finger from the Thumb is known by the Name of *Abductor*, which, arising out of the external and middle Part of the Bone of the Cubit, and passing under the *Annular* Ligament, cleaves to the Lateral and outward Part of the Bones of the Fore-finger.

The Little-finger hath two proper Muscles, viz. an *Extensor* and an *Abductor*.

The *Extensor* springs from the lower Part of the *Condylus* of the Arm-Bone, and is fastned by a double *Tendon* in the second Articulation of the Little-finger, and in the *Tendon* of the *Extensor* of all the others.

The *Abductor*, call'd also *Hypothenar*, hath its beginning from the small Bone of the Wrist, which is situated over the others, and is terminated in the first Bone of the Little-finger on the out-side.

CHAP. XII.

Of the Muscles of the Thighs, Legs and Feet.

What are the Motions of the Thighs?

The Thigh performs five kinds of Motions; for it is bent, extended, drawn within side and without, and turn'd round: All these Motions are produc'd by the Means of fourteen Muscles, viz. three *Flexors*, three *Extensors*, three *Adductors*, three *Abductors*, and two *Obturator*s, for the Circular Motion.

The *Flexors* of the Thigh are the *Psoas*, *Iliacus*, and *Pectineus*.

The *Psoas* or *Lumbaris* is situated inwardly in the *Abdomen*, on the Side of the *Vertebrae*. It proceeds from the transverse Processes of the two lower *Vertebrae* of the Back, and of the upper of the Loins, and lying on the inner Face of the *Os Ilion*, cleaves to the lesser *Trochanter* or *Rosator*.

The *Iliacus Internus* hath its Origin in all the Lips of the inner Cavity of the *Os Ilion*, and being join'd by a *Tendon* to the *Lumbaris*, is inserted with it in the lesser *Trochanter*.

The *Pectineus* takes its rise from the fore-part of the *Os Pubis*, and is united before to the Thigh Bone, a little below the lesser *Trochanter*.

The *Extensors* of the Thigh are the *Gluteus Major, Medius, and Minimus*.

The *Gluteus Major* springs forth out of the lateral Part of the *Os Sacrum*, as also the hinder and outer Part of the *Os Ilium* and *Coccyx*, and enters into the Thigh-Bone, four Fingers breadth below the great *Trochanter* or *Rotator*, being the thickest of all the Muscles of the Body.

The *Gluteus Medius*, deducing its Original from the hinder and outer Part of the *Os Ilium*, is inserted three Fingers breadth below the great *Trochanter*.

The *Gluteus Minimus* ariseth from the bottom of the Cavity of the *Os Ilium*, and is fastned to a small Hole near the great *Trochanter*.

The *Adductors* of the Thigh are the *Triceps Superior, Medius, and Inferior*.

The *Triceps Superior* hath its beginning in the top of the *Os Pubis*, and is terminated in the top of a Line, which is on the Inside of the Thigh.

The *Triceps Medius* proceeding from the middle of the *Os Pubis*, is inserted in the Thigh bone a little lower than the *Triceps Superior*.

The *Triceps Inferior* hath its Source in the bottom of the *Os Pubis*, and is implanted in the Thigh-Bone, a little lower than the *Triceps Medius*. Some Anatomists make only one Muscle of these three, attributing thereto three Originals and three Insertions. These Muscles serve to draw the Thighs one against another.

The *Abductors* of the Thigh are the *Iliacus Internus*, or *Pyriformis*, the *Quadratus*, and the *Gemelli*.

The *Pyriformis* arising from the upper and lateral Part of the *Os Sacrum*, and the *Os Ilion*, cleaves to the Neck of the great *Trochanter*.

The *Quadratus* or square Muscle of the Thigh, takes its Origin from the External Prominence of the *Os Ischion*, and adheres to the outward Part of the great *Trochanter*.

The *Gemelli*, or Twin-Muscles, arise from two small Knobs in the hinder Part of the *Ischion*, and insinuate themselves into a small Cavity in the Neck of the great *Trochanter*.

The Circular Motion of the Thigh is perform'd by the means of two Muscles, nam'd the *Obturatores Externi* and *Interni*.

The *Obturator Internus* springs from the inner Circumference of the Oval Hole of the *Ischion*, and its Tendons passing between the two *Gemelli*, are inserted in a small Cavity at the Root of the great *Trochanter* or *Rotator*.

The *Obturator Externus* ariseth from the outward Circumference of the same Hole of the *Ischion*, and is terminated in the Side of the other, near the great *Trochanter*.

What are the Motions of the Leg, and what are its Muscles?

The Leg is mov'd four several ways, that is to say, it is bent, extended, and drawn inward and outward, by the means of eleven Muscles, viz. three *Flexors*, four *Extensors*, two *Adductors*, and two *Abductors*.

The three *Flexors* of the Leg, are the *Biceps*, the *Semi-nervosus*, and the *Semi-membranosus*.

The *Biceps* hath two Heads, the longer whereof cometh out of the bottom of the Prominence

of the *Ischion*, and the other from the middle and exterior Parts of the *Femur*, and is terminated in the outward and upper Part of the *Epiphysis* of the *Perone* or *Fibula*.

The *Semi-nervosus* hath its Origin in the Knob of the *Ischion*, and is join'd backward to the top of the *Epiphysis* of the *Tibia*. These three Muscles are plac'd in the back-part of the Thigh below the Buttocks.

The four *Extensors* of the Leg are the *Rectus*, the *Vastus Internus*, the *Vastus Externus*, and the *Cruureus*.

The *Rectus* or strait Muscle of the Leg takes its rise from the Fore-part and the Bottom of the *Ilium*, and descends in a right Line: It covers with its *Tendon*, which is common to the three following, the whole Knee-Pan, and adheres to the top of the *Tibia*, on the Fore-part.

The *Vastus Internus*, being situated on the inside of the Thigh, hath its beginning on the top of the Thigh inwardly, and a little below the lesser *Trochanter* or *Rotator*: Afterward it is ty'd to the *Tibia* by a large *Tendon*, common thereto with the preceeding.

The *Vastus Externus* is plac'd on the outside of the Thigh, springing from the Top and the Fore-part of the *Femur*, being united by the same *Tendon* with the two preceeding.

The *Cruureus* proceeds from the Top, and the Fore-part of the Thigh-Bone, between the two *Trochanters*; then covering the whole Bone, it is also fastned to the Leg-Bone with the three preceeding Muscles, after having cover'd the Knee-Pan with their common *Tendon*.

don, which serves likewise as a Ligament to the Knee.

The two *Adductors* of the Leg are the *Sartorius* and the *Gracilis*.

The *Sartorius* or the *Longissimus* draws the Leg inward, deriving its Original from the upper Spine of the *Ischion*; from whence it descends obliquely thro' the Inside of the Thigh, and cleaves to the Top on the Inside of the *Tibia*.

The *Gracilis* hath its Origin in the Fore-part at the Bottom of the *Os Pubis*, and its Insertion in the Top of the *Tibia* on the Inside.

The two *Abductors* of the Leg are the *Fascia lata*, and the *Popliteus*.

The *Fascia lata*, or the *Membranofus*, is as it were a kind of large Band, which covers all the Muscles of the Thigh. It proceeds from the outward edge of the *Os Ilium*, is ty'd by a large Membrane to the Top of the *Perone* or *Fibula*, and sometimes descends to the end of the Foot.

The *Popliteus*, or *Sub-popliteus*, arising from the lower and external *Condylus* of the Thigh-Bone, passing obliquely from the Outside to the Inside, till it is lost in the upper and inner Part of the Leg-Bone under the Ham.

What are the Motions of the Foot, and what are its Muscles?

The Foot performs two Motions by the help of nine Muscles, as being bent by two, and extended by seven.

The two *Flexors* are the *Tibialis Anticus*, and the *Peroneus Anticus*.

The *Tibialis Anticus*, is plac'd along the *Tibia*, and takes its rise from its upper and fore-part: Afterwards it is bound by two *Tendons* to the first
Os

Os Cuneiforme, or Wedge-like Bone, and to the
of the *Metatarsus*, or Instep, which stayeth the
great Toe, after having pass'd under the Annular
Ligament.

The *Peronæus Anticus* springs from the middle and outward Part of the *Perone* or *Fibula*, and insinuating it self thro' the Cleft which is under the external *Malleolus* before, cleaves the Bone of the *Metatarsus* that supports the little Toe.

The seven *Extensors* of the Foot are the two *Gemelli*, or the *Soleus*, the *Plantaris*, the *Tibialis Posticus*, and the two *Peronæi Postici*.

The *Gemelli* are the *Interior* and the *Exterior*, the former having its rise from the inner *Condylus*, and the other from the outward and lower of the Thigh-Bone; whence they extend themselves till they are fastned to the *Talus* or Ankle Bone by a *Tendon* common to them, with the following.

The *Soleus* arising from the Top on the back Part of the Leg-bone and *Perone*, and confounding its *Tendon* with that of the *Gemelli*, cleaves close to the *Talus*.

The *Plantaris*, which lies hid between the *Gemelli* and the *Soleus*, hath its Origin from the *Posterior Condylus* of the Thigh-Bone; then uniting its *Tendon* with the preceeding, it adheres to them, and this common *Tendon* is call'd *Chorda Achillis*.

The *Tibialis Posticus*, springs from the back Part of the Leg-Bone, from whence extending it self downward, it passeth thro' the Fissure in the *Internal Malleolus*, and cleaves to the inner Part of the *Os Scaphoides*.

The *Peronæi*, or *Fibulæi Postici*, are otherwise call'd the *Longus* and the *Brevis*, whereof one proceeds from the upper, and almost fore Part of the *Perone*, terminating in the upper Part of the Bone that supports the great Toe in the *Metatars-Fibula*, and the other from the lower Part of the *Perone*, adhering in like manner to the Bone with which the little Toe is sustain'd.

With what Motions are the Toes endu'd, how many Muscles have they, and which be they?

The Toes are bent and extended, as also drawn inward and outward, by the means of twenty two Muscles, of which sixteen are Common, and six Proper. The former are two *Flexors*, two *Extensors*, four *Lumbricales*, and eight *Interossei*. The first *Flexor* is nam'd *Sublimis*, and the other the *Profundus*.

The *Sublimis*, or *Perforatus*, derives its Origin from the lower and inner Part of the *Talus*, and is fix'd in its proper Place by four cleft *Tendons*, which are inserted in the upper Part of the Bones of the first *Phalanx* of the four Toes. It cleaves a situated under the Sole of the Feet.

The *Profundus*, or *Perforans*, hath its beginning in the top and back Part of the Leg-bone and the *Perone*, slips under the *Malleolus Internus* thro' the *Sinus Calcaris*, and makes four *Tendons*, which pass thro' the Fissures of the Tendon of the *Sublimis*, and cleave to the Bones of the last *Phalanx* of the Toes to bow them.

The first *Extensor* is call'd the *Common*, and the other the *Pedians*.

The *Common Extensor*, or the *Longus*, takes its Rise from the top and fore-part of the *Tibia*, in the Place of its joyning with the *Perone* or *Fibula*.

Fibula, and divides it self into four *Tendons*, which after having pass'd under the Annular Ligament, are inserted in the Articulation of every Toe.

The *Pedius* or the *Brevis*, being plac'd over the Foot, proceeds from the Annular Ligament, and the lower Part of the *Perone*, and sends forth four *Tendons*, which are fixt to the first Articulation of the four Toes on the Outside. Thus this Muscle, together with the *Longus*, causeth their Extension.

The four *Lumbrical* Muscles of the Toes arise from the *Tendons* of the *Profundus*, and a Mass of Flesh at the Sole of the Feet. They are join'd by their *Tendons* with those of the *Interossei Interni*, and adhere inwardly to the Side of the first Bones of the four Toes, to incline them toward the great Toe.

The *Abductors*, or those Muscles that remove the Toes from the great Toe, are the eight *Interossei*, whereof four are call'd *Externi*, and as many *Interni*. The former take their rise in the Spaces between the Bones of the *Metatarsus*, and are terminated outwardly in the Side of the first Bones of the Toes. The Internal lie in the bottom of the Foot, and take up the Spaces between the five Bones of the *Metatarsus*. They arise from the Bones of the *Tarsus*, and the Intervals between those of the *Metatarsus*, and are implanted with the four *Lumbricales* inwardly, in the upper Part of the Bones of the first *Phalanges* of the four Toes.

Of the six proper Muscles of the Toes, there are four appointed for the great Toe, which cause it to perform the Motions of Flexion, Extension,

ension, and draw it forward or backward. The two others are the *Adductor* of the second Toe to the great Toe, and the *Abductor* of the little Toe call'd *Hypothenar*.

The Proper *Flexor* of the great Toe, arising from the top of the *Perone* or *Fibula*, on the back Part, passeth thro' the Ankle-bone on the Inside, to the Sole of the Foot, and is fastned to the Bone of the last *Phalanx*.

The Proper *Extensor* of the great Toe springs from the Middle of the Fore-part of the *Perone*, passeth over the Foot, and hath its Insertion in the upper Part of the Bone of the great Toe.

The Proper *Adductor* of the great Toe, or the *Thenar*, taking its rise inwardly on the Side of the *Talus*, the *Ossa Scaphoidea* and *Innominata*, extends it self over the outward Part of the Bone of the *Metatarsus*, which stayeth the great Toe, and adheres to the Top of the second Bone of the great Toe, which it draws inward.

The Proper *Abductor* of the great Toe, or the *Antithenar*, draws it toward the other Toes. It derives its Origin from the Bone of the *Metatarsus*, which supports the little Toe, slides obliquely over the other Bones, and cleaves to the first Bone of the great Toe on the Inside.

The *Adductor* appropriated to the second Toe, hath its rise from the first Bone of the great Toe, on the Inside, and sticks close to the Bones of the second Toe, which it draws to the great Toe.

The

The *Abductor* of the little Toe, or the *Peroneus*, proceeds from the outward Part of the Bone of the *Metatarsus*, that stayeth the little Toe, and is inserted in the top of the little Toe on the Outside, to remove it from the others.

A List of all the Muscles in the Humane Body

The Forehead hath two Muscles.

The hinder Part of the Head

The Eye-lids

The Eyes

The Nose

The Ears on the Outside

The Ears on the Inside

The Lips

The Tongue

The *Uvula*

The *Larynx*

The *Pharynx*

The *Os Hyoides*

The Lower-Jaw

The Head

The Neck

The *Scapulae*, or Shoulder-blades.]

The Arms

The Cubits

The *Radii*

The Wrists

The Fingers

The Breast, or the Parts of Respiration

The Loins

The *Abdomen*, or lower Belly

The Testicles

The Bladder

The Compleat Surgeon.

65

| | |
|--------------|-----|
| The Penis | 4 |
| The Clitoris | 4 |
| The Anus | 3 |
| The Thighs | 30 |
| The Legs | 22 |
| The Feet | 18 |
| The Toes | 44 |
| Total | 425 |

C H A P. XIII.

Of the Anatomy of the Nerves, Arteries, and Veins in general.

WHAT is the Structure of the Nerves?

The Nerves are round white Bodies, en-
clos'd in a double Membrane, communicated to
them from the two *Meninges* of the Brain: their
Office is to convey the Animal Spirits into all the
Parts.

*Where is the Root and first Beginning of all the
Nerves?*

All the Nerves take their Original from the
Medulla Oblongata, and that of the Spine.

*How is the Distribution of them made thro' the
whole Body?*

It is directly perform'd by Conjugations or
Pairs, whereof one goes to the Right-hand, and
the other to the Left: There are nine Pair of
them that proceed from the *Medulla Oblongata*,
and enter into the Skull; and a tenth that
comes from the Marrow which lies between the
Occipital and the first *Vertebra* of the Neck. It
passeth

passeth thro' the Hole of the *Dura Mater*, thro' which the Vertebral Artery enters, to distribute its Branches into several Parts.

To what Use are the nine Pairs of Nerves appropriated, which proceed from the Root of the Brain?

They are chiefly design'd for the Senses, and also for the Motion of their Organs, of which the Ancients discover'd only seven.

The first Pair of Nerves is call'd the *Olfactory* and serve for the Smelling.

The second Pair is the Optick or Visual Nerve, which serve for the Sight.

The third is term'd *Motorii Oculorum*, being serviceable for the Motion of the Eyes.

The fourth Pair is nam'd *Oculorum Pathetici*, which shews the Passion of the Mind in the Eyes, whereto it imparts a String as well as to the Lips.

The fifth is call'd the *Gustative*, and appropriated to the Taste, because it sends Twigs more especially to the Tongue, as also to the Fore-head, Temples, Face, Nostrils, Teeth, and Privy-Parts.

The sixth is likewise for the Taste, and goes to the Palate.

The seventh is the *Auditive* Nerve, that enters into the *Os Petrosum*, where it divides it self into many Branches, which when gone forth, are distributed to the Muscles of the Tongue, Lips, Mouth, Face, Fore-head, Eye-lids, &c.

The eighth is the *Os Vagum*, or wandering Pair, which is united to the Intercostal Nerve, as also to the Recurrent, Diaphragmatick, Mesenterick &c.

The ninth Pair, after having form'd a Trunk with the eighth, disperseth its Twigs several Ways, whereof one is join'd with the Twig of the Tenth, to be distributed together into the Muscle *Sternohyoideus*, and into the Tongue.

The *Intercostal* and *Spinal* are not Pairs of Nerves, but only Branches or Twigs of other Pairs.

What is the Distribution and Use of the thirty Pair of Nerves that proceed from the Spinal Marrow?

There are seven that go forth from the seven *Vertebrae* of the Neck, twelve from those of the Back, five from the Loins, and six from the *Os Sacrum*, according to the following Progression.

The first of the seven Pair of Nerves of the Neck proceeds from between the Occipital Bone and the first *Vertebra*, nam'd *Atlas*, its Fibres being lost in the Muscles of the hinder Part of the Head and Neck.

The second Pair springs from between the first and second *Vertebrae* of the Neck; the Fibres whereof are lost in the Muscles of the Head, and in the Skin of the Face.

The third Pair issueth from between the second and third *Vertebrae* of the Neck; and its Fibres are lost in the Flexor Muscles and Extensors of the Neck.

The fourth, fifth, sixth and seventh Pairs proceed from between the *Vertebrae*, as before, but their Fibres are lost in the Neck of the *Omo-pla*ta, in the Arm, and in the *Diaphragm* or Midriff. Here it ought to be observ'd by the Way, that the Arms receive Branches not only from the four

four last Pair of the Nerves of the Neck, but also from the two first Pair of the Back, which are extended even to the end of the Fingers. Whence it happens that in the Palsie of the Arms Remedies are usually apply'd to the *Vertebrae* of the Neck; and that in Phlebotomy, or letting Blood, Care must be taken to avoid pricking the Nerve which accompanies the Basilisk-Vein in the Cubit.

The twelve Pair of Nerves that have their beginning from between the *Vertebrae* of the Back are each of them divided into two Branches, and the others; and their Branches are distributed in like manner to the Muscles of the Breast, and those of the Back and *Abdomen*.

The five Pair which take their rise from between the *Vertebrae* of the Loins, have thicker Branches than the others; and the distribution of them is made to the Muscles of the Loins, *Hypogastrium*, and Thighs.

Of the six Pair of Nerves that proceed from the *Os Sacrum*, the four Upper, with the three Lower of the Loins, send forth Fibres to the Thigh, Leg, and Foot; and the two last Pair impart Nerves to the *Anus*, Bladder and Privy Parts.

What is the Structure of the Arteries?

The Arteries are long and round Canals, consisting of four Sorts of Tunicks or Membranes which have their rise from the left Ventricle of the Heart, from whence they receive the Blood, and convey it to all the Parts of the Body for their Nourishment.

What is the Construction of these four Tunicks or Membranes of the Arteries?

The first being thin and nervous in its outward Superficies, is in the inside a *Plexus* or Interlacement of small Veins and Arteries, and Fibres of Nerves, which enter into the other following Tunicks to nourish them.

The second sticking close to the former, is altogether full of whitish Glandules, that serve to separate the serous Particles of the Blood.

The third is intirely Musculous, and interwoven with Annular Fibres.

The fourth is very thin, and hath its Fibres all strait.

Whence proceeds the Pulse or beating of the Arteries?

It is deriv'd from the Heart, and exactly answers to its Motion of *Diastole* and *Systole*.

By what Name is the first Trunk of the Arteries call'd, and what is the Effect of the Distribution made thence to the whole Body?

The first Trunk of the Arteries is nam'd *Aorta*, or the *thick Artery*, which proceeds immediately from the left Ventricle of the Heart, whereto it communicates before its departure from the *Pericardium*, one or two small Branches call'd the *Coronary*: Afterward it is divided into two Branches, whereof one goes upward, and is term'd the *Ascending Artery*; and the other downward, under the Denomination of the *Descending Artery*.

The *Ascending Artery* ariseth upward along the *Aspera Arteria*, or Wind-Pipe, to the Clavicles, and is there divided into two Branches, call'd the *Subclavian Arteries*, one whereof goes forward to the Right-side, and the other to the Left; and they both send forth on each Side divers

vers Branches, which take their Names from the several Parts whereto they are distributed ; these are the *Carotides*, or *Soprales Interni & Externi*, which pass to the Head ; the *Mediastina*, the *intercostal*, the *Axillar*, and others.

The *Descending Artery*, before its departure from the Breast, affords certain Branches to the *Pericardium*, *Diaphragm*, and lower Ribs ; afterward it penetrates the *Diaphragm*, and constitutes seven double Branches. The first is of those that are call'd *Cœliack*, and which go to the Liver and Spleen. The second Branch contains the *Upper Mesenterick*. The third the *Emulgent*, which pass to the Reins. The fourth the *Spermatick*, which are extended to the Genitals. The fifth the *Lower Mesenterick*. The sixth the *Lumbago*. And the seventh the *Muscular*. But as the great Trunk is come downward to the *Sacrum*, it divides it self into two thick Arteries nam'd the *Iliack*, which are distributed on both Sides, each of them making two Internal and external Branches, which likewise impart Sprouts or lesser Arteries, to the Bladder, *Anus*, *Mammary*, and other adjacent Parts : Then the Main branch forms the *Crural Arteries* on the Inside of the Thighs, which are communicated by multiplying their Number even to the ends of the Toes in passing over the external Ankle-bones of the Feet.

What is the Structure of the Veins ?

The Veins are long and round Canals made of four kinds of Tunicks or Membranes, whose Office it is to receive the Blood that remains after the Nourishment is taken, and to carry it back to the Heart to be reviv'd.

What is the Form of the four Tunicks that make the Canals of the Veins?

The first is a Contexture of Nervous and Strait Fibres. The second is a Plexus of small Vessels that carry the Nourishment. The third is all over beset with Glandules thro' which are filtrated the serous Particles of the Blood contain'd in the Vessels of the second Tunicle. The fourth is a Series of Annular and Musculous or Fleahy Fibres.

Which are the most Numerous, the Arteries or the Veins?

The Number of the Veins exceeds that of the Arteries; and there are scarce any Arteries without Veins accompanying them.

Where is the Beginning and Original of all the Veins?

All the Veins have their Root in the Liver, and two of the three great Trunks that proceed from thence are call'd *Vena Porta*, and *Vena Cava*; and the third is twofold, viz. the ascending and the descending.

The *Vena Porta* is distributed to all the Parts contain'd in the lower Belly, and terminated in the Fundament; where it makes the Internal Hemorrhoidal Veins.

The *Vena Cava* is immediately divided into two thick Branches, one whereof ariseth upward to the right Ventricle of the Heart, and forms the ascending *Vena Cava*; as the other goes downward to the Feet, and constitutes the descending.

What is the Distribution of the ascending *Vena Cava*?

It perforates the Diaphragm, goes to the Heart, and ascends from thence to the Clavicles, after

after having communicated to the Midriff in passing a small Branch call'd the *Phrenicus* ; as also one or two to the Heart, nam'd the *Coronary* ; and some others to the upper Ribs, besides the single Branch, term'd *Azygos*, only on the Right side. But the Trunk of the *ascending Vena Cava*, being once come up to the Clavicles, is divided into two Branches, well known by the Name of the *Subclavian*, one whereof shoots forth toward the Right-side, and the other toward the Left ; and they both make various Ramifications like to those of the thick ascending Artery, by producing the *Cervicales* or *Soporales* and the Internal and External *Jugulars* that go to the Head : As also the *Axillars*, which pass to the Arms and Shoulders, forming the *Cephalica*, the *Median*, and the *Basilisk* on the Inside of the Cubit.

The *descending Vena Cava* in like manner accompanieth the Ramifications of the *Aorta*, or thick descending Artery, to the fourth *Vertebra* of the Loins, where it sends forth two Branches nam'd the *Iliack*, one whereof goes to the Right-side, and the other to the Left, both inwardly and outwardly ; imparting divers Twigs or lesser Branches to all the Parts contain'd in the *Abdomen* or lower Belly, ev'n as far as the *Fundamentum* where it makes the external *Hemorrhoidal Vena*. Afterward the outward Branch of the *Iliack* descends within the Thigh, to form the *Crural*, and others, as far as the *Saphena*, together with those that are at the end of the Feet.

CHAP. XVI.

Of the Anatomy of the Abdomen, or lower Belly.

WHAT is the clearest Division of the Humane Body into various Parts, and that which is most followed in the Anatomical Schools?

It is that which constitutes three *Venters*, that is to say, the Upper, the Middle, and the Lower, which are the Head, the *Thorax* or Breast, and the *Abdomen* or lower Belly, together with the *Extremities*, which are the Arms and Legs.

What is the lower Belly?

It is a Cavity of the Body that contains the Organs of Nutrition, as the Reins, the Bladder, and all those that are appropriated to Generation in both Sexes.

What is to be consider'd outwardly in the lower Belly?

Its different Regions, and the several Parts therein contain'd.

What are those Regions?

They are the *Epigastrick*, the *Umbilical*, and the *Hypogastrick*.

What is their Extent?

It is from the *Xiphoides* or Sword-like Cartilage to the *Os Pubi*, the division whereof into three equal Parts, constitutes the three different Regions; the *Epigastrium* being the first upward, the *Umbilical* the second, and the *Hypogastrium* the third.

What are the Parts contain'd in the Epigastrium and what Place do they possess therein?

The Parts contain'd in the *Epigastrium* are the Liver, the Spleen, the Stomach, and the Pancreas or Sweet-bread, which lies underneath: The Stomach takes up the Middle before, the Liver being plac'd on the Right-side, and the Spleen on the Left; so that these two Sides of the Epigastrick Region, are call'd the Right and Left Hypochondria.

What Parts are there contain'd in the Umbilical Region, and what is their Situation?

They are the most Part of the thin Intestines or Small Guts, viz. the Duodenum, the Jejunum and the Ileum, which have their Residence in the Middle, where they are encircl'd with a Portion of the two great Guts, Cæcum and Colon, that take possession of the Sides, otherwise call'd the Flanks. The Reins or Kidneys are also in this Place, above, and somewhat backward.

What Parts are there contain'd in the Hypogastrium, and of what Place are they possess'd?

The greater Part of the thick Guts, Cæcum and Colon, are enclos'd therein, with the end of the Rectum; there is also a Portion of the Ileum which hides it self in the Sides of the Ilium, and Hip-bones: In the middle under the Os Pubis, the Bladder is situated on the Gut Rectum in Men, and the Womb in Women lies between the Bladder and Rectum.

After what manner is the opening of a Corpse dead Body perform'd at a publick Dissection?

It is begun with a Crucial Incision in the Skin from underneath the Throat downward, traversing from one side to another in the Umbilical Region ; then the Skin is rais'd, beginning at the four Corners, and the *Panniculus Adiposus* is immediately discover'd : Under this Fat lies a fleshy Membrane, call'd *Membrana Carnosa* ; and under that, the common Membrane of all the Muscles of the lower Belly. Thus we have taken a View of what Anatomists commonly term the five Teguments, that is to say, the *Epiderma* or Scarf-Skin, the *Derma* or true Skin, the *Panniculus Adiposus*, the *Panniculus Carnosus* or *Membrana Carnosa*, and the common Membrane of the Muscles.

The five Teguments being remov'd, we meet with as many Muscles on each side, *viz.* the descending Oblique, the ascending Oblique, the Transverse, the Strait, and the Pyramidal, by the means whereof the Belly is extended and contracted. Afterwards appears a Membrane nam'd *Peritonæum*, which contains all the Bowels, and covers the whole lower Belly, being strongly fastned to the first and third *Vertebrae* of the Back. The Fat skinny Net which lies immediately under the *Peritonæum*, is call'd *Epiplon* and *Omentum*, or the Caul ; it floats over the Bowels, keeping them in a continual Suppleness necessary for their Functions, maintains the Heat of the Stomach, and contributes to Digestion.

It remains to take an Account of the Bowels, *viz.* the Stomach, Mesentery, Liver, Spleen, Kidneys, Bladder, and Guts, together with the Parts appointed for Generation, which in Men

are the Spermatick Vessels, the Testicles, and the Penis; and in Women, the Spermatick Vessels, the Testicles or Ovaries, the Womb, and its Vagina or Neck.

What is the Stomach?

It is the Recepracle of the Aliments or Food convey'd thither thro' the *Oesophagus* or Gullet, which is a Canal, or kind of strait Gut that reacheth from the Throat to the Mouth of the Stomach. The Stomach it self is situated immediately under the *Diaphragm* or Midriff, between the Liver and the Spleen, having two Orifices, whereof the Left is properly call'd *Stomachus*, or the Upper, and the Right (at its other Extremity) *Pylorus*, or the lower Orifice. Its Figure resembleth that of a Bag-pipe, and the greater Part of its Body lies toward the Left-side. It is compos'd of three Membranes, viz. one Common, which it receives from the *Peritoneum*; and two Proper; the two uppermost being smooth, and the innermost altogether wrinkled.

What is the Pancreas, or Sweetbread?

It is a Fat Body, consisting of many Glands wrapt up in the same Tunicle, being situated under the *Pylorus*, or lower Orifice of the Stomach: It helps Digestion, and hath divers other Uses; but its principal Office is to separate the serous Particles of the Blood, to be convey'd afterward into the Gut *Duodenum*, by a Canal or Passage, nam'd the *Pancreatick*. This Juice serves to cause the Chyle to ferment with the Choler, in order to separate the grosser Particles from those that ought to enter into the Lactal Vessels.

Into how many Sorts are the Guts distinguish'd?

There

There are two Sorts, *viz.* the Thin and the Thick.

How many thin or small Guts are there ?

Three ; that is to say, the *Duodenum*, the *Jejunum*, and the *Ileon*.

How many thick Guts are there ?

Three likewise ; *viz.* the *Cæcum*, the *Colon*, and the *Rectum*.

Why are some of them call'd thin Guts, and others thick ?

Because the thin are smaller, being appointed only to transport the Chyle out of the Stomach into the Cistern or Receptacle ; whereas the thick are more large and stronger, serving to carry forth the gross Excrements out of the Belly.

Are the six Guts of an equal Length ?

No, the *Duodenum*, which is the first of the thin Guts, is only twelve Fingers breadth long : The *Jejunum*, being the second, so call'd because always empty, is five Foot long : The third is nam'd *Ileon*, by reason of its great Turnings, which oblige it to pass to the *Os Ilion*, where it sometimes produceth a Rupture ; it extends it self almost twenty Foot in length.

The first of the thick Guts, known by the Name of *Cæcum* is very short, and properly only an *Appendix* or Bag of two thirds of an Inch in length : That which follows is the *Colon*, being the largest of all, and full of little Cells, which are fill'd sometimes with Wind and other Matters, that excite the Pains of the Cholick. It compasseth the thin Guts, in passing from the top to the bottom of the Belly, by the means of its great Circumvolations, and is from eight to nine Foot long. The last is the *Rectum*, or

strait Gut so nam'd, because it goes directly to the Fundament : It is no longer than ones Hand, but it is fleshy, and situated upon the *Os Sacrum*, and the *Coccyx*, or Rump-bone.

What is the Peristaltick Motion of the Guts ?

It is the successive Motion and Undulation, whereby the Guts insensibly push forward from the top to the bottom, the Matters contain'd in them ; and that Motion which on the contrary is perform'd from the bottom to the top, is term'd the *Antiperistaltick*, as it happens in the *Iliack* Passion, or twisting of the Guts, call'd *Domine*, *Miserere*, by reason of its intolerable Pain.

What is the Mesentery ?

It is a kind of Membrane somewhat fleshy, which is join'd to the Spine in the bottom and middle of the Belly, and by its folding keeps all the Guts steady in their Place ; it is all over beset with Red, White, and Lymphatick Vessels ; that is to say, those that carry the Blood, Chyle, and *Lympha*, which serves to cause this last to run more freely, and to ferment. Three notable Glandules are also observ'd therein, the greatest whereof lies in the middle, and is nam'd *Asellius's Pancreas* ; the two other lesser are call'd *Lumbar Glandules*, as being situated near the left Kidney. From each of these Glandules proceeds a small Branch, and both are united together to make the great *Lacteal Vein*, or *Thoracick Canal*. This Tube conveys the Chyle along the *Vertebra* of the Back to the Left *Subclavian Vein* ; from whence it passeth into the ascending *Vena Cava*, and descends into the Right Ventricle of the Heart.

where it assumes the form of Blood ; from whence it passeth to the Lungs thro' the *Pulmonary Artery* ; then it returns to the Heart thro' the *Pulmonary Vein*, and goes forth again thro' the Left Ventricle of the Heart, between the *Aorta*, or great Artery, to be afterward distributed to all the Parts of the Body. Thus is the Chyle discharg'd into the Blood, and circulates with it till it is assimilated and converted into its Substance.

What is the Liver ?

The Liver, being the thickest of all the Bowels, is plac'd in the Right *Hypochondrium*, at the distance only of a Fingers breadth from the Diaphragm ; its Figure much resembling that of a thick piece of Beef : It is Convex on the outside, and Concave within ; its Substance is soft and tender, its Colour and Consistence being like coagulated Blood : It is cleft at Bottom, and divided into two Lobes, viz. one greater, and the other less : Its Office is to purifie the Mass of Blood by Filtration ; and it is bound by two strong Ligaments, the first whereof adheres to the Diaphragm, and the second to the *Xiphoides* or Sword-like Cartilage. Two great Veins take their rise from hence, the *Vena Porta*, and the *Vena Cava*, which form innumerable Branches, as it were Roots in the Body of the Liver. The Gall-bladder is fastned to the hollow Part thereof, and dischargeth its Cholar into the Gut *Duodenum*, thro' the Vessels that bear the Name of *Meatus Choledochi*, or *Ductus Biliares*. This Cholar is not a meer Excrement, but on the contrary of singular Use in causing the Fermentation of the Chyle, and bringing it to perfection.

What is the Spleen ?

The Spleen is a Bowel resembling a Hart's Tongue in shape, and situated in the Left *Hypochondrium*, over-against the Liver : Its length is about half a Foot, and its breadth equal to that of three Fingers ; its Substance being soft, as that of the Liver, and its Colour like dark coagulated Blood : It is fastned to the *Peritoneum*, Left-Kidney, Diaphragm, and to the Caul on the Inside ; as also to the Stomach by certain Veins, call'd *Vasa Brevia* ; nevertheless these Ligatures do not hinder it from shifting here and there in the lower Belly, where it often changeth its Place, and causeth many dreadful Symptoms by its irregular Motions. Its Office is to subtilize the Blood by cleansing and refining it.

What are the Reins ?

The Reins or Kidneys are Parts of a fleshy Consistence, harder and more firm than that of the Liver and Spleen : They are both situated in the Sides of the Umbilical Region, upon the Muscle *Psoas*, between the two Tunicks of the *Peritoneum* ; but the Right is lower than the Left : Their Shape resembleth that of a French-Bean, and they receive Nerves from the Stomach, whence Vomitings are frequently occasion'd in Nephritick Cholicks : They are fastned to the Midriff, Loins, and *Aorta*, by the *Emulgent Arteries*, as also to the Bladder by the *Ureters*. The Right Kidney likewise adheres to the Gut *Cacum*, and the Left to the *Colon*. Their Office is to filtrate or strain the Urine into the *Pelves* or Basins, which they have in the middle of their Body, and to cause

it to run thro' the Vessels call'd *Ureters* into the Bladder.

Immediately above the Reins on each Side, is a flat and soft Glandule, of the thickness of a Nut; they are nam'd *Renal Glandules*, or *Capsula Atribiliarie*, because they contain a blackish Liquor, which, as some think, serves as it were Leven for the Blood, to set it a fermenting.

What is the Bladder?

It is the Basin or Reserver of Urines, of a Membranous Substance as the Stomach, being plac'd in the middle of the Hypogastrick Region; so that it is guarded by the *Os Sacrum* behind, and by the *Os Pubis* before: Two Parts are to be distinguish'd therein, viz. its Bottom and Top; by its Membranous Bottom it is join'd to the Navel, and suspended by the means of the *Uracus*, and the two Umbilical Arteries which degenerate into Ligaments in adult Persons: As by its fleshy Neck, longer and crooked in Men, and shorter and strait in Women, it cleaves to the *Intestinum Rectum* in the Former, and to the Neck of the Womb in the Latter. Lastly, its Office is to receive the Urine, to keep it, and to discharge it from time to time.

What are the Genitals in Men?

They are the Spermatick Vessels, the Testicles, and the *Penis*. The Spermatick Vessels are a Vein and an Artery on each side; the former proceeding from the *Aorta*, or thick Artery of the Heart; and the other from the Branches of the *Vena Cava* of the Liver. These Arteries and Veins are terminated in the Body of the Testicles, which are two in Number, enclos'd within the *Scrotum*.

The Office of the Testicles is to filtrate the Seed, which is brought thither from all the Parts of the Body, thro' the Spermatick Vessels, call'd *Præparantia*, and afterwards to cause it to pass thro' others nam'd *Deferentia*, to the *Vesiculae Seminales*, from whence it is forc'd into the *Ureters* thro' two small and very short Canals.

The *Penis*, or Yard, is a Nervous and Membranous Part, well furnish'd with Veins and Arteries, containing in the middle the Canal of the *Ureters*. Its Extremity, which consists of a very delicate and spongy sort of Flesh, is call'd *Balanus*, or *Glands*, and the Nut, the Skin that covers it being nam'd the *Præputium*, or the Fore-Skin. Thus by the means of this swell'd Part, and thro' the affluence of the Spirits, the Male injects his Seed into the Womb of the Female, to propagate his Kind.

What are the Parts appropriated to Generation in Women?

They are the Spermatick Vessels, the Ovaries or Testicles, and the Womb. The Spermatick Vessels are a Vein and an Artery on each Side, as in Men: The Ovaries or Testicles, situated on the side of the bottom of the Womb, are almost of the same Bigness with those of Men, but of a round and flat Figure. The *Vesiculae*, or little Bladders which they contain, are usually term'd *Ova*, or Eggs, by Modern Anatomists; and the Vessels that pass from these Testicles or Ovaries to the *Cornua* of the *Uterus*, are call'd *Deferentia* or *Ejaculatoria*.

The *Matrix*, *Uterus*, or Womb, is the principal Organ of Generation, and the Place where it is perform'd, resembling the Figure of a Pear

with its Head upward, and being situated between the *Gut Rectum* and the Bladder : It is of a fleshy and membranous Substance, retain'd in its place by four Ligaments, fastned to the Bottom ; whereof the two upper are large ones, proceeding from the Loins, and the two lower round, taking their rise from the Groin, where they form a kind of Goose-Foot, which is extended to the *Os Pubis*, and the flat Part of the Thighs ; which is the cause that Women are in danger of Miscarrying when they fall upon their Knees.

The exteriour Neck of the Womb, call'd *Vagina*, is made almost in form of a Throat or Gullet, extending it self outwardly to the Sides of the Lips of the *Pudendum*, and being terminated inwardly at the internal Orifice of the Womb, the Shape whereof resembles that of the Muzzle or Nose of a Puppy. The outward Neck of the Womb is fastned to the Bladder and the *Os Pubis* before, and in the hinder Part to the *Os Sacrum* : Between the Lips of the *Pudendum* lie the *Nymphae*, which are plac'd at the Extremity of the Canal of the Bladder, to convey the Urine ; and somewhat farther appear four Caruncles, or small pieces of Flesh, at the Entrance of the *Vagina*, which when join'd together make the thin Membrane call'd *Hymen*.

C H A P. XV.

*Of the Anatomy of the Thorax, Breast
or middle Venter.**WHAT is the Breast?*

It is a Cavity in which the Heart and the Lungs are principally enclos'd.

What is to be consider'd outwardly in the Breast?

Its Extent, and the Situation of the Parts therein contain'd.

What is its Extent?

It is extended from the *Clavicles* to the *Xiphoides*, or Sword-like Cartilage on the Fore-part, and bounded on the Hinder by the twelfth *Vertebra* of the Back, having all the Ribs to form its Circumference, and the *Diaphragm* for its Bounds at bottom, separating it from the *Abdomen* or lower Belly.

What is the Situation of the Parts contain'd in the Breast?

The Lungs take up the upper Region, and fill almost the whole Space, descending at the distance of two Fingers breadth from the *Diaphragm*; the Heart is situated in the middle, bearing its Point somewhat towards the Left-side, under the Lobes of the Lungs, which are divided by the *Modiastinum* that distinguishes them into the right and left Parts.

How is the Breast Anatomiz'd or open'd?

After

After the Dissection of the five Teguments^s and the removal of the Muscles, as in the lower Belly, the Anatomist proceeds to lift up the *Sternum*, or Breast-bone, by separating it from the Ribs; then it is laid upon the Face, or else entirely taken away, to the end that the internal Parts of the Breast may be more clearly discover'd; whereupon immediately appear the Heart, the Lungs, the Diaphragm, and the *Mediastinum*, which sticks to the *Sternum* throughout its whole Length.

What is the Heart?

It is a most noble Part, being the Fountain of Life, and the first Original of the Motion of all the others; on which account it is call'd *Primum vivens*, & *ultimum moriens*; that is to say, the first Member that begins to live, and the last that dies.

What Parts are to be consider'd in the Heart?

Its fleshy Substance, with all its Fibres turn'd round like the Skrews of a Vice; its *Basis*, Point, Auricles, Ventricles, large Vessels, *Pericardium*, and Ligatures or Eyes: The *Basis* is uppermost and broadest Part; the Point is the lowermost and narrowest Part; the two Auricles or small Ears being as it were little Cisterns or Receptacles, that pour the Blood by degrees into the Heart, are situated on each Side above the Ventricles. The Ventricles, which are likewise two in Number, are certain Cavities at its Right and Left Sides. The large Vessels are the *Aorta* or great Artery, and the *Vena Cava*, together with the Pulmonary Artery and Vein. The *Pericardium* is a kind of Bag fill'd with Water, wherein the Heart is kept; which is fastned

fastned to the *Mediastinum* by its *Basis*, and to the large Vessels that enter and go out of its *Ventricles*.

What are the Terms appropriated to the continual beating of the Heart?

They are *Diastole* and *Systole*, from whence proceed two several Motions, the first whereof is that of Dilatation, and the other of Contraction, communicated to all the Arteries which have the same Pulse.

To what Use serves the Water contain'd in the Pericardium?

It prevents the drying of the Heart by its perpetual Motion.

What are the Lungs?

They are an Organ serving for Respiration, of a soft Substance, and porous as a Sponge, being all over replenish'd with Arteries, Veins, Nerves and Lymphatick Vessels, and perforated with small Cartilaginous Tubes, that are imparted to it from the Wind-Pipe, and are call'd *Bronchiæ*. Their natural Colour is a pale Red, and marbl'd dark Brown; and their whole Body is wrapt up in a fine smooth Membrane, which they receive from the *Pleura*. They are suspended by the Wind-Pipe, by their proper Artery and Vein, and by the Ligatures that fasten them to the *Sternum*, *Mediastinum*, and frequently to the *Pleura* it self: They are also divided into the Right and Left Parts by the *Mediastinum*; having four or five Lobes, whereof those on the Left-side cover the Heart. Their continual Motion consists in *Inspiration*, to take in the Air, and *Expiration*, to drive it out. The *Larynx* makes the Entrance of the Wind-Pipe into

into the Lungs, and the *Pharynx* that of the *Oesophagus* or Gullet, at the bottom of the Mouth, to pass into the Stomach.

C H A P. XVI.

Of the Anatomy of the Head, or Upper Venter.

WHAT is the Head?

It is a bony Parr, that contains and encloseth the Brain within its Cavity.

What is most remarkable in the outer Parts of the Head?

The Temporal Arteries, the *Crotaphitæ*, or Temporal Muscles, and the Sutures of the Skull.

Why are these Things considerable?

The Temporal Arteries are of good Note, because they are expos'd on the Outside, lying even with the Skin. The Temporal Muscles are so likewise, in regard that they can't be hurt without danger of Convulsions, by reason of the *Pericranium*, with which they are cover'd. And the Sutures, because the *Meninges* of the Brain proceed from thence to form the *Pericranium*.

What is the Pericranium?

It is a Membrane that lies under the thick hairy Skin of the Head, and immediately covers the Skull.

What are the Meninges?

They are two Membranes that enclose the Substance or Marrow of the Brain.

What is a Suture?

It

It is a kind of thick Seam or Stich, that serves to unite the Bones of the Skull.

How many Sorts of Sutures are there ?

There are two Sorts, viz. the true and the false or Bastard.

What are the true Sutures ?

They are three in Number, namely the *Sagittal*, the *Coronal*, and the *Lambdoidal*.

What is the Disposition or Situation of the true Sutures ?

The *Sagittal* is strait, beginning in the middle of the Forehead, and sometimes at the Root of the Nose, and being terminated behind, at the joining of the two Branches of the *Lambdoidal Suture*.

The *Coronal* appears in form of a Crown, passing up to the middle of the Head, and descending thro' the Temples, to finish its Circumference to the Place call'd the *Fontanel* or Mould, the Root of the Nose.

The *Lambdoidal Suture* is made like an open Pair of Compasses, the Legs whereof are extended toward the Shoulders ; and the Button is in the top of the Head backward.

What are the Bastard Sutures ?

They are those that are call'd *Squamous* or scaly.

What is the Disposition or natural Situation of these false Sutures ?

They are plac'd at the two Sides of the Head, and make a Semi-Circle of the bigness of the Ears, round the same Ears.

What difference is there between the true and spurious Sutures ?

The true Sutures are made in form of the Teeth of a Saw, which enter one into the other ; and the false or Bastard ones are those that

that resemble the Scales of Fishes, which are join'd together by passing one over the other.

What is the Use of the Sutures ?

The Antients were of Opinion, that they were made to hinder the Fracture of one Skull-Bone from passing thro' the whole Head ; but there is more reason to believe that they have the three following Uses, that is to say, 1. To promote the transpiration of the Brain. 2. To give Passage to the Vessels that go to the *Diploe*. 3. To retain the *Meninges*, and to support the Mass of the Brain, which is included in them.

What are the Names of the Bones that compose the Skull ?

The Bone of the Fore-part of the Head is call'd *Sinciput*, or the Fore-head Bone, as also the *Frontal* or *Coronal* Bone. The Bone of the hinder Part, enclos'd within the *Lambdoidal* Suture is term'd the *Occipital*. The two Bones that form the upper Part, and are distinguish'd by the *Sagittal* Suture, bear the Name of *Parietals*, one being on the Right-side, and the other on the Left. And those behind the Ears are call'd *Temporal*, *Squamosa*, or *Petrosa*. These also are distinguish'd into the Right and Left Temporals, and are join'd to the bottom of the *Parietal* by a bastard *Squamous* Suture.

What is most remarkable in the thickness of the Skull Bones ?

The *Diploe*, which is nothing else but a *Plexus* or Contexture of small Vessels that nourish the Bones, and in the middle of their thickness make the distinction of the first and second Tablature of the Bones ; whence it sometimes happens

pens that an exfoliative Trepan, or Semi-Trepan, is sufficient, when the first of these two Tables is only broken, the other remaining entire.

Is the Brain which is preserv'd in the Skull all of one Piece, or one equal Mass?

No, it is distinguish'd by the means of the *Meninges* into the Brain it self, and the *Cerebellum* or little Brain; the Brain, properly so called, takes up almost the whole Cavity of the Skull, and the *Cerebellum* is lodg'd altogether in the hinder Part, where it constitutes only one entire Body; whereas the former is divided into the Right and Left Parts by the *Meninges*, which separate it even to the Bottom, whence these Foldings are call'd *Falx*; i. e. a *Seythe* or *Sickle*.

What is chiefly remarkable in the Substance of the Brain?

The Ventracles or Cavities which are found therein, together with the great Number of Veins, Arteries, Lymphatick Vessels, and Nerves, that carry Sense to all the Parts of the Body, and Supply them with their Motion.

An exact Historical Account of all the Holes of the Skull, and the Vessels that pass thro' them.

To attain to an exact Knowledge of all the Holes with which the Inside of the *Basis* of the Skull is perforated, they are to be consider'd either with respect to the Nerves, or to the Blood Vessels.

There

There are nine Pairs of Nerves that arise from the *Medulla Oblongata*, and go forth out of the Skull through many Holes hereafter named.

The first Pair is that of the *Olfactory* Nerves, appropriated to the Sense of Smelling, which are divided below the *Os Cribriforme*, or Sieve-like Bone, into divers Threads, that passing into the Nose thro' many Holes with which this Bone is pierc'd, are distributed to the inner Tunick of the Nose.

The second Pair is that of the *Optick*, or Visual Nerves, that pass into the Orbits of the Eyes, thro' certain peculiar Holes made in the *Os Sphenoides*, or Wedge-like Bone, immediately above the *Anterior Processus Clinoides*.

In the Portion of the *Os Sphenoides*, that makes the *Basis* of the Orbit, lies a Fissure about seven or eight Hairs breadth long, which is to be observ'd chiefly at the Bottom, that is to say, below the Hole, thro' which the Optick Nerve passeth; where it is almost round, and larger than at the Top, where it is terminated in a very long and acute Angle.

There are many Pairs of Nerves that enter into the Orbit thro' this Fissure, viz. 1. The third Pair, call'd the *Motorii Oculorum*. 2. The fourth Pair, nam'd *Pathetici* by Dr. Willis. And 3. The whole sixth Pair. Besides these three Pairs, which go entire thro' this Cleft, there is also a Passage for the upper Branch of the foremost Fibre of the fifth Pair, which the same renown'd Physician calls the *Ophthalmick* Branch. Beyond the lower Part of the said Fissure, toward the hinder Part of the Head, is to be seen in

in the *Os Sphenoides* on each Side, a Hole that doth not penetrate the *Basis* of the Skull, but makes a kind of *Ductus*, about an Hairs breadth long, which is open'd behind the Orbit on the top of the Space between the *Processus Pterygoides*, and a third Bone of the Jaw; thro' this *Ductus* runs the lower Branch of the foremost Fibre of the fifth Pair.

About the length of two Hairs breadth beyond these *Ductus*'s, we may also discover in the *Os Sphenoides*, or Wedge-like Bone, two Holes of an Oblong and almost Oval Figure, which are plac'd in the hindermost Sides of that of the *Os Sphenoides*, and give Passage to the hindermost Fibre of the fifth Pair.

The Hole thro' which runs the *Auditory Nerve*, that makes the seventh Pair, is in the middle of the hinder Part of the *Os Petrosus*, that looks toward the *Cerebellum*: This Hole being very large, is the Entrance of a *Ductus* that is hollow'd in the *Os Petrosus*, and which sinking obliquely from the Fore-part backward, for the depth of about two Hairs breadth, forms as it were the bottom of the Sack, the lowermost Part whereof is terminated partly by the *Basis* of the *Cochlea*, and partly by a Portion of the Mouth of the *Vestibulum*. At the bottom of this *Ductus* are many Holes, but the most considerable is that of the upper Part, through which passeth a Portion of the *Auditory Nerve*. This is also the Entrance of another *Ductus* made in the *Os Petrosus*, which is open'd between the *Mastoides* and *Styloides*: The other Holes afford a Passage to the Branches of the soft Portion of the same *Auditory Nerve*.

Below

Below this *Ductus* there is a remarkable Hole form'd by the meeting of two hollow Cuts, the larger whereof is in the Occipital Bone, and the other in the lower Part of the *Processus Petrosus*: From the middle of the upper Part of this Hole issueth forth a small Prominence or bony Point, whereto is join'd an Appendix of the *Dura Mater*, which divides the Hole into two Parts; so that through the foremost Orifice passeth the Nerve of the eighth Pair, and that which is call'd the *Spinal Nerve*. We shall have occasion hereafter to shew the Use of the hinder Orifice.

Near the great Hole of the Occipital Bone, from whence proceeds the *Medulla Oblongata*, we may observe a Hole almost round and oblong, thro' which passeth the Nerve of the ninth Pair: This Hole is intirely situated in the Occipital Bone, and making a little way in the Bone, passeth obliquely from the back Part forward. In the Inside of the Skull this Hole is sometimes double, but its two Entrances are re-united in the outward Part of the Skull; and the two Branches that form the Origin of this Nerve, and which pass thro' these two Holes, are likewise re-united at their Departure. These are the Passages of the nine Pair of Nerves that proceed from the *Medulla Oblongata*, and it remains only to shew the Paths, thro' which the Intercostal Nerve goes forth, as also that of the tenth Pair. The Intercostal runs out of the Skull thro' the *Ductus* that gives Entrance to the Internal *Processus*. As for the tenth Pair, in regard that it ariseth from the Marrow which is enclos'd between the Occipital Bone

Bone and the first *Vertebra*, it goes forth thro' the Hole of the *Dura Mater*, where the *Vertebral Artery* enters.

To know well the Holes, thro' which the Vessels that belong to the inner-part of the Head enter, and issue forth, it is requisite to distinguish them into those which are distributed to the *Dura Mater*, and those that are appointed for the Brain. The Vessels of the *Dura Mater* are Branches of the *Carotid* or *Vertebral Arteries*.

In the *Ossis Sphenoides*, or Wedge-like Bone, behind the Hole, thro' which passeth the hindermost Fibre of the fifth Pair of Nerves, lies another small Hole, almost round, that gives Entrance to a Branch of the *External Carotid Artery*, which in entring, immediately adheres to the *Dura Mater*, and forms many Ramifications to over-spread the whole Portion of this Membrane, which covers the Sides and the upper-part of the Brain.

At the bottom and top of the lateral outward Part of the Orbit of the Eye, above the acute Angle, for want of the *Ossis Sphenoides*, there is a Hole, thro' which passeth an Artery, being a Twig of a Branch of the *Internal Carotid* which is diffus'd in the Eye, and distributed to almost the whole Portion of the *Dura Mater*, that covers the Fore-part of the Brain.

The *Vertebral Artery* in entring into the Skull furnisheth it on each Side with a considerable Branch, which is dispers'd throughout the whole Portion of the *Dura Mater* that covers the *Cerebellum*.

As for the *Veins* that accompany these *Arteries*, they almost all go out of the Skull thro' the same Holes where the other enters.

There are four thick *Arteries* which convey to the Brain the Matter with which it is nourish'd, and that whereof the Spirits are form'd, viz. the two *Internal Carotids* and the two *Vertebrals*.

The *Internal Carotid Arteries* enter into the Skull thro' a particular *Ductus* made in the temporal Bone, the Mouth thereof being of an Oval Figure, and situated in the outward Part of the *Basis* of the Skull, before the Hole of the *Internal Jugular*. This *Ductus* extends it self obliquely from the Back-side forward, and after having made about three Hairs breadth in length, is terminated in the hinder-part of the *Os Sphenoides*. The Artery traverseth the whole winding Compass of this *Ductus*, which resembles the Figure of the Roman Letter S, and at the Mouth of the same *Ductus* runs under the *Dura Mater* along the Sides of the *Os Sphenoides* to the *Anterior Processus Clinoides*, where it riseth up again, to perforate the *Dura Mater*, and to adhere to the Root of the Brain. These Vessels, in like manner, after their Departure from the Bone of the Temples, to the Place where they pierce the *Dura Mater*, make a second Circuit in form of the Roman Character S. At the Place where these *Carotid Arteries* penetrate the *Dura Mater*, they send forth a thick Branch, which enters into the Orbit of the Eye, by the lower Part of the Hole, thro' which the *Optick Nerve* hath its Passage.

The *Vertebral Arteries* proceeding from the Holes of the transverse *Process* of the first *Vertebra*, turn about in passing under the upper *Oblique Processes* of the seven *Vertebrae*: Afterward they perforate the *Dura Mater*, and running under the Marrow, enter into the Skull through the Occipital Hole; then inclining one toward another, they are re-united, and form only one single Trunk.

The Veins that bring back the Blood from the Substance of the Brain, are empty'd into the *Sinus's* of the *Dura Mater*, which are all discharged into those that are call'd *Lateral*, which last go out of the Skull immediately under the Nerves of the eighth Pair, thro' the hinder-part of the Hole made by the meeting of the *Occipital Bone*, and the *Apophysis Petrosa*. These *Lateral Sinus's* fall into the *Internal Jugulars*, which are receiv'd into a considerable Cavity hollow'd on each Side in the outward Part of the *Basis* of the Skull, which is nam'd the Pit or Hole of the *Internal Jugular*.

In the upper and hinder Part of the Hole, from whence the *Lateral Sinus's* issue forth, is to be seen an opening in the Extremity of a *Ductus*, the Mouth whereof lies behind the *Condyles*, which are on the sides of the Occipital Trunk: This *Ductus* is extended about the length of two Hairs breadth in the Bone, and the Canal enclos'd therein is open'd immediately into the *Vertebral Sinus*: So that one might affirm it to be as it were its Original Source. Whence it appears, that the Blood contain'd in the *Lateral Sinus's* is empty'd thro' two Places; the greater Portion thereof descending in the *Jugular*

from

from the Neck, and the other in the *Vertebral Sinus's*: Sometimes those *Ductus's* are found only on one Side, another while both are stoppt up, and then the Blood contain'd in the lateral *Sinus's*, is discharg'd into the *Internal Jugulars*.

Behind the *Processus Mastoideus* on each Side, is a remarkable Hole, thro' which passeth a thick Vein, which brings back part of the Blood that hath been distributed to the Teguments and Muscles, which cover part of the Occiput, or hinder-side of the Head: This Vein is open'd into the lateral *Sinus's* at the Place where they begin to turn about. But in the Heads of some Persons, this Hole is found only on one Side, and even sometimes not at all; in which Case the Blood contain'd in these Vessels falls into the *External Jugulars*, with which the Branches of this Vein have a Communication.

In each *Parietal Bone* on the side of the *Sagittal Suture*, at a little distance from the *Lambdoidal*, appears a Hole, thro' which passeth a Vein, that brings back the Blood of the Teguments of the Head, and dischargeth it self into the upper *Longitudinal Sinus*. These Holes are sometimes stoppt up on one Side, and sometimes on both; and then the Blood contain'd in the Branches of this Vein runs into the *External Jugulars*.

In the middle of the *Sella* of the *Os Sphenoides*, we may observe one or two small Holes thro' which (according to the Opinion of some Modern Anatomists) the *Lymphia* contain'd in the *Glandula Pituitaria* is thrown in-

to the *Sinus* of the *Sella* of the *Os Sphenoides*; nevertheless it is certain, that these Holes are fill'd only with Blood Vessels, which carry and bring back the Blood of the Bones and Membranes whereof those *Sinus's* are compos'd; besides that these Holes are rarely found in adult Persons.

Between the Spine of the *Coronal Bone* and the *Crista Galli*, is a Hole, which serves as an Entrance for a *Ductus*, which sink from the top to the bottom, the length of about two Lines breadth into the Substance of the inner Table of that Bone: The Root of the upper *Longitudinal Sinus* is strongly implanted in this Hole, which also affords a Passage to some Blood-Vessels appointed for the Nourishment of this inner Table.

Many other small Holes are found in divers Places of the *Basis* of the Skull; the chief whereof are those that are observ'd in the *Apophysis Petrosa*, and give Passage to a great Number of Vessels that serve for the Nutriment of that Part of the Temporal Bone which is call'd the *Tympanum* or Drum: The other Holes are principally design'd for the Vessels that are serviceable in the nourishing of divers Parts of the *Basis* of the Skull.

C H A P. XVII.

The following Anatomical History was communicated to me by Mr. Francis Poupart, tho' he does not assume it as his own, it being extracted from some Modern Authors, tho' with some Difference in the Order.

A Description of the Brain.

Whoever would know the true Reasons of the Motion of a Watch, can never satisfy himself better than by taking it in pieces after he has invented its Outside: In the same manner the Naturalist who inquires into the Causes of the Functions of the Brain, must dissect the wonderful Machine, and consider well all the Parts which compose it.

After the five common Teguments are remov'd, there remain three more particular to the Head alone; the one Carnous, the other Flethy, last and Bony, viz. the Muscles, the Pericranium and the Skull, which serves as a natural Helmet to cover the Brain, and defend it from the Injuries which so soft a Substance would otherwise be expos'd to. I shall not spend Time in observing that the Skull is divided into two Tables, which are separated by a Spongy or Cavernous Space, call'd the *Diploe*; that this Natural Armour is made of Pieces well adjusted together, and distinguish'd by Junctures, call'd *Sutures*, which are so many Vents thro'

which the Vapours of the Brain exhale ; the inner Surface of the Skull is lin'd with the *Dura Mater*, and has several Furrows imprinted in it by the beating of the Arteries of the *Dura Mater*, whilst the Substance of the Bone was tender ; nor, in short, that the round Figure was given to it in Men, whose Brain is larger than that of other Animals, that it might be more capacious and solid. For the Famous Mr. Boyle having put two Glass Vessels into his Pneumatick Engine, and exhausted the Air, suffering it to rush in of a sudden by opening it a Passage, he found the round Glass entire, when that of an irregular Figure was broke by the *Impetus* of the Air. I shall pass over these Considerations, since they do not assist us much in the Knowledge of the Animal Operations, which it is my present Design to speak of.

When the Cap is taken of the Brain, it presents it self to view as it is cover'd with the *Dura* and *Pia Mater*, which are interlac'd with an Infinity of Veins and Arteries ; from the beating of which, its *Systole* and *Diastole* proceed.

The *Dura Mater*, besides an Infinity of small Vessels, has four considerable Branches, call'd *Sinus's*, which have a Pulsation like Arteries, and bring back the refluxent Blood into the Veins.

Some have thought the Animal Spirits are generated there, and others allot them to cool the Blood which comes out of the Arteries. But their true Use is like a *Balneum Mariae*, by a mild and moist Heat to help the Distillation of

the Animal Spirits in the Cinereous Substance of the Brain, and bring back the superfluous Blood into the Jugular Veins. All the Veins of this Part are like so many small Brooks, which discharge Blood into four great Rivers.

The *Sinus* extending along the *Falx*, answers to the Sagittal Suture, is the largest of all ; and the *Lambdoidal* Suture is larger than the fourth, which is call'd *Torcular*. This is form'd by the Concourse of the three former, and strikes into the inmost Parts of the Brain. When it arrives at the *Glandula Pinealis*, which adheres close to it by a certain Number of Vessels, it makes a Fork, one Branch going to the right and the other to the left Ventricle, and there forms the *Plexus Choroides*, by joyn'g to two Arteries which rise from the *Carotids*, and proceed along the Sides of the *Medulla Oblongata*, and these *Plexus* follow the *Medulla Oblongata*, if it be drawn back.

They are likewise compos'd of a Quantity of Lymphatick Vessels, and many imperceptible Glands, which gives occasion to believe that part of the Serosities found in the Ventricles of the Brain, may be separated there. However, it is probable this is not the chief Use of these *Plexus* ; but rather that they serve as a *Balneo Mariae*, whose Heat keeps Motion in the Animal Spirits, lodg'd in the *Corpus Callosum* immediately above them, which otherwise would be cold, having few or no Spirits to heat them. The Heat of these *Plexus* further serves to keep the Serosities in the Ventricles fluid, which otherwise would be dispos'd to thicken by the Cold, and by this means prevents Apoplexies and

Palsies, which the Stagnation of these condens'd Liquors, or the Obstruction of the *Infundibulum* would otherwise cause.

As Rivers divide Countries, so these *Sinus's*, as so many Currents of Water, separate the Brain into three Provinces. The Lateral ones make a Separation of the Brain and *Cerebellum*. The former is divided into two Hemispheres by the Longitudinal one, which breaks the Impetuosity by several Ligaments, which may aptly be compar'd to Chains drawn across Streets to stop the Confluence of People. Besides this, these Ligaments serve to keep the *Sinus* at a certain distance, for fear the Channel should be too much enlarg'd by extraordinary Inundations. These serve too as Bridles, to give a Check to, or hasten the Circulation of the Blood, by their Contraction and Relaxation. For the resfluent Blood having lost its most spirituous Part in the Cereous Part of the Brain; and having left behind it in the Glands of the Membranes a Part of its Serosity, must necessarily be thicker. Therefore to prevent it from Stagnating in the *Sinus*, there are Arteries inserted into it which add new Life and Motion to it.

The Veins which come to these *Sinus's* have their Course from before backwards in Animals with their Head hanging down, lest a contrary Position might give way for the Blood to fall down to the Nostrils, where it would be enclosed by its Weight: But in Men these Veins tend from behind forwards; from whence it proceeds that Men are more subject to bleed at Nose than Beasts.

And since these Lateral *Sinus's* may be more press'd by the *Cerebellum* in Beasts, who have their Head hanging down, and especially such as are design'd for Swiftneſs, as Dogs; or Fighting, as Lions, which might ſtop the Circulation of the Blood in the Brain; Nature has plac'd a Bone of a Triangular Figure between the *Cerebellum* and theſe *Sinus's* to prevent Compreſſion. Without this Precaution, the Weight of the *Cerebellum* bearing on the Brain, would preſs together its Channels, and hinder the free Motion of the Animal Spirits, and cauſe a perpetual Lethargy.

It is on theſe *Sinus's* chiefly that the Convex Surface of the Brain is ty'd to the Skull which helps to ſuſpend the Brain, and its Concave Surface adheres to the fiſt by ſeveral Veſſels.

This is interwoven with a great Number of Arteries, the leaſt of which have but one Tunick and as many Veins which form divers admirable Labyrinths. It does all the good Offices to the Brain which a tender Mother can do to her Infant. It keeps it warm in her Boſom when it has not ſtrength to ſtand of it ſelf. It defends and keeps it from external Injuries, and gives its Breſt to draw Nouriſhment from. The *Dura Mater* does the ſame Services for the Brain, and after that there is no room to aſk whence it has its Name, tho' ſome pretend theſe Membranes are ſo call'd, becauſe the reſt in all Parts of the Body ſpring from them.

Tho' the *Pia Mater* be a very thin Membrane, yet it is beſet with a great Number of Glands, which can only be ſeen by the Microſcope; or

after they have been soak'd for some time in warm Water, in which they swell, as in a *Hydrocephalus*; for then being fill'd with Serofities, they are considerable. They were first discover'd by Dr. *Willis* in an Hydropical Head; but it cannot be said they are the products of a Disease; because they are found naturally in the Head of all Animals.

All these Glands being very small, do not hinder the *Pia Mater*, which abounds with them, from insinuating it self into the deepest *Anfractus* in the cinereous Part of the Brain, stopping on the Edge of the callous Substance, on which it bestows several Vessels, tho' Dr. *Willis* has not observ'd any.

The Brain being intirely divested of these two Membranes, its cinereous Ash-colour'd Substance appears under. This Colour is not superficial, but penetrates to the bottom of the Sinuosities, under which lies the Medullary Part, which is as white as Snow.

It is very probable that the different Colour of these two Parts does only proceed from the different Dispositions of their Surfaces; and that the one is white, because it reflects more light, and the other brown; because it reflects less light towards our Eyes, part of which it drinks into its Pores.

But a more particular Cause of the brown Colour may be given, by ascribing it to the *Sal Armoniack* which is very plentiful in the Brain, which by its Volatility is sublim'd to the upper Part, being stop'd there by the close Contexture of the Skull. The Scene of the Brain, especially when it begins to corrupt,

rupt, and the Chymical Anatomy of it by Distillation, shew it is fill'd with such a Salt as we have describ'd. Lastly, the greyish Colour of the inner Substance of the Kidneys, which is full of an Urinous or Aromatick Salt, shews that this is capable of giving a Colour to such Bodies as it abounds in, as in the cinereous Part of the Brain.

This Part is distinguish'd by a Multitude of Furrows, the use of which was unknown to the Ancients. *Aristotle* fancies they serv'd to make the Brain lighter; but if this were all the Design, Nature might have made it lesser. *Erasistratus* places the Understanding here, which is founded on the Variety of its *Anfractus*, which answers well enough to the Variety of Thoughts. But this Imagination being founded more on Morality than Nature, I shall not insist on it by in this Place. It is more probable they serve to introduce the Vessels into the Matter which goes to the bottom of these Furrows.

And since they are so many Pores, through which the Matter of the Spirits is convey'd to the Brain, those Animals which have most of these *Anfractus's* must have most Spirits, and by Consequence most Sagacity, which chiefly depends on this subtil Liquor. To Dr. *Willis's* Observations do agree. And the Animal Functions in Men do require more Spirits than in Beasts, with much more Reason we may conclude, that those who have the fewest *Anfractus's* have the least Wit, because they cannot so well exercise the chief Functions of the Soul, as those who have more. Wherefore

fore little Heads which have very few, and sharp-pointed Heads, which contain still less, because the cinereous Part is very small, being prest by this Figure which contracts it self above, are subject to Folly, which gives way to the Latin Proverb, *Citones in insaniam precipites sunt*: And the Prince of the Greek Poem observes, That *Thersites* had his Soul as ill turn'd as his Body, painting him in these Terms, *Θῆξας ἀμαρτολῶνα*.

We have insisted long on the Surface of the Brain. If we proceed a little further, and examine nearer the Cinereous Substance, we shall find that it is nothing more than an Aggregate of an Infinity of small Glands, which are more conspicuous when the Brain is thorowly boild, than when it is raw and not boild at all. And as all the Glands which serve for Filtration, have a particular Vessel, into which they discharge their Liquor; so the Glands of the Brain have each their particular excretory Tube, thro' which the Animal Spirit which they filter is convey'd.

All these Tubes meeting in a *Fasciculus* or Bundle, make the *Corpus callosum*, which lies immediately under the Ash-colour'd Substance: They form also the Spinal Marrow and *Medulla oblongata*, which is seated under the *Corpus callosum*. So that the Brain may be justly compar'd to a Bunch of Grapes. The Glands of the Cinereous Substance are the Grapes, the Medullary Tubes which arise from them, are the Stalks, which unite and end in one Stalk, and that is the *Medulla oblongata*. The Tubes arising from the Glands

Glands are thicker in the *Corpus callosum*, which is immediately beneath them, than in the *Medulla oblongata*, which is more distant. Nor can it be thought strange that this last is not so large as the *Corpus callosum*, tho' it be an Aggregate of the same Tubes which compose both.

If we pursue these Medullary Channels, they will lead us to certain Cavities call'd the Ventricles of the Brain, which seem to be form'd by the Meeting of the two great Branches, which rising from the Trunk of the *Medulla oblongata*, or the Basis of the Brain form a sort of an Arbor. Their Figure resembling a Crescent, perhaps gave the Ancients occasion to fancy the Moon had the Government of the Brain. The Serosities with which most commonly they are fill'd, the Situation of the *Infundibulum* in the middle of them, in which it serves as a Sink, and the *Glandula Pituitaria* directly beneath to receive what comes from them, seem to evince they are only Receptacles of the Superfluous Moisture of the Brain, and not the Laboratory of the Animal Spirits, which subtil Fluid must needs escape thro' the Arches of these Vaults, or the *Infundibulum*, or the Hole which answers to the *Crista Galli*.

These two Ventricles are divided by a Partition which the *Latins* call *Septum lucidum*, by reason of its transparency. This Partition is fastned above in the Roof of the Ventricles, and below to the *Medulla oblongata* between two Eminences call'd *Corpora striata* or the channell'd Bodies, from the Furrows visible in them.

And as all Roofs have need of some Pillars or other Props to support them, so this of the Brain has three, one of which is call'd the *Basis* of the Vault

Vault, which is seated between the *Thalami* [or Beds] of the Optrick Nerves and these striate or channell'd Bodies. The two others are call'd the Arms of the Vault, because in effect they embrace the Thighs of the *Medulla oblongata*. These might with better Reason be call'd the Arches of the Vault, because these Arms bending a little towards the sides of the *Medulla oblongata*, form a Ridge with two Arches and three Pillars, which make the *Basis* of the Roof, and the two Extremities of its Arms which support themselves on the *Medulla oblongata*. The two Branches of this *Medulla* bear the Name of the Thighs, not only because they pretty much resemble those Parts in their Figure, but further because there are above them two Eminences which are like Buttocks. Between these two Parts there is a Hole which is call'd *Vulva*, because its Figure and Situation is not very unlike that Part. That call'd *Anus* has its Name too from its Figure and Situation, which is precisely between the Buttocks at the Entry into the third Ventricle.

The Thighs of the *Medulla oblongata* do not scind so well but that they leave behind them a Hole call'd *Infundibulum* or the Funnel, which terminates at the *Sella Turcica* on the *Glandula Pituitaria*, with which it is inclosed there as in a Nich, and all enterlac'd with an Infinity of small Arteries which come from the Carotids; for it is by that way they enter into the Brain, their Branches joining with so many small Veins, compose that Contexture, which is call'd *Rete mirabile*. The Pituitary Gland is like a Sponge, which obsorbs the superfluous Serosity which is contain'd in the Arteries of that *Plexus*, which

Man has no occasion for, his Blood not being so watry as that of Beasts.

The Veins of the *Rete Mirabile* which terminate likewise in the *Pituitary* Gland are charged with the Humidities which the *Infundibulum* is constantly pouring in, and which it receives from the Arteries which enter it on every Side, and carries them into the Jugular Veins to make the Blood more fluid, which by the loss of its Spirits in passing through the Brain, was become thick; and this is the Cause too why the Trunk of the Lymphatick Vessels discharges its *Lympha* into the Axillary Veins, which are Ramifications of the Jugulars. The Injection of colour'd Liquors, which is made thro' the *Infundibulum*, and which appear in the Jugulars, will not suffer us to doubt that the Serosities of the Brain go thither.

For we must not believe that the Water which runs thro' the *Infundibulum*, passes thro' the *Os Sphenoides*, and discharges it self by the Palate into the Mouth; though the Water which Dr. Willis poured into the *Sella Turcica*, after he had remov'd the *Dura Mater* which lined it, the *Pituitary* Gland, and all the Vessels of the *Rete mirabile* (some of which fill the Holes of the *Os Sphenoides*) did distil into the Mouth, because he himself had made a Passage by removing the Vessels which fill the Holes, whereas in a living Animal, this Bone being lined with the *Dura Mater*, and its Holes fill'd, it is impossible that any Liquor should pass, as any one will find who shall please to make the Experiment. Pour Water, or any other subtil Liquor, as Spirit of Wine, into the *Sella Turcica*, and you will not find the least Drop go into the Mouth. For the better

better discovering the Pituitary Gland and the *Reti mirabile* you must free the *Dura Mater*, which adheres to the *Basis* of the Skull, beginning at the Entry of the Spinal Marrow, and continuing to the *Sella Turcica*. This cannot easily be done but in the Head of a Calf, because that other Animals, who have the Head less tender and moist, this Membrane clings more closely.

The Pituitary Gland is not only water'd by the Serosities of the Anterior Ventricles, but farther by those which come from the Cerebel by the fourth Ventricle, or that which flows from the *Nates* by the third. And this can scarcely be deny'd if we reflect, that from the fourth Ventricle quite to the *Infundibulum* there is a continu'd Valley, in which there was a Stream of Serosities, which passing under this part call'd *Varolius* his Bridge, seated under the *Glandula Pinealis*, goes and discharges it self into the *Infundibulum*, and thence into the Pituitary Gland.

But for fear this Rivulet should exceed its Bounds, and run over the Lateral Processes which bound its Channel to the Right and Left, and which are seated between the Brain and Cerebel, there is a Cloth spread over to hinder these Inundations. For the rest this Cloth cannot in any manner do the Office of a Valve, because it hinders neither Wind nor any other Liquor from passing from the third to the fourth Ventricle, nor from the fourth to the third, as appears by the making of Injections. Besides that its two Ends are fastned to the Roof of these Ventricles, that is; to the Cerebel at the Head of the Vermicular Process, and on the Sides of the *Nates* to the Edge of the Testicles, whereas to perform the Office of

of a Valve, it ought to have been fastned below.

For the more fully evincing the Truth of this, there requires nothing more but to pass the Probe dextrously underneath, and to observe heedfully upon laying it open, whether it has made it self a Passage by leaving the soft Substance, or as follow'd the Road which Nature has trac'd ; and if you have introduc'd as you ought, you will find it has made no Breach.

From what I have said I am perswaded that the third and fourth Ventricle, as well as the two anterior ones, only serve to receive the Serosities of the Parts above them, very far from what *Bartholin* fancies, that they are the Place where the Animal Spirit is generated.

The third Ventricle arises from the Conjunction of the two Anterior ones by their Concave Surfaces. Both those half Spheres and their Processes, which have the Shape and Name of Testicles, are only Productions of the *Medulla oblongata*.

In passing from the Eminences to the *Cerebellum* there are three Sorts of *Apophyses* or *Processes*, viz. two Lateral lying all along the Marrow on its Edges. These are join'd by a middle Process, where the Pathetick Nerves take their rise. All these Processes are on the *Medulla oblongata*, below which there are the Pyramidal and Annular Processes, which taking their rise from the *Cerebellum*, like a Ring, embrace the *Medulla oblongata*.

These Lateral Processes serve to keep a Communication between the Brain and Cerebellum, and convey the Undulation of the Spirits from one to the other ; and perhaps the Course of one is from

from the Brain to the Cerebel, and the other is the Reverse of this, that two contrary Undulations at the same time may not hinder one another; and this is the Reason of their Duplicity.

The middle Process communicates to the Pathetick Nerves which arise from it, the Undulations which the Passions imprint on the Spirits, and which pass from the Cerebel to the Brain by the Lateral Processes. These Undulations of the Spirits being convey'd to the Muscles of the Eye, put them into several Motions proper to discover the Passions which cause them, as any one may discover in himself or another upon any Emotion of Mind, and from this they derive their Name.

The Pyramidal Processes, are the Receptracle of the Spirits which flow into the eighth Pair of Nerves, which assisting in the incessant Motions of the Lungs and Diaphragm, require a great stock of Spirits which are kept in these Processes.

In the last Place, the Annular Processes serve to keep a Communication between the Heart and the Brain, in such manner that all the Pathetick Undulations which are rais'd in the Spirits of the Heart, being convey'd to the Brain chiefly by the Nerves of the fifth and sixth Pair, pass thro' the Process in which these two Pair of Nerves terminate. For this Reason it is that Animals which are most passionate have these Processes larger than others, because the Spirits dilate them by passing often thro' them.

The Cerebel in which these Processes terminate, is form'd by two Branches, which leaving the

the Sides of the Trunk of the *Medulla Oblongata* form a Sort of *Arbor* above, meeting in the Middle, and leave a Cavity, between which is accounted the Fourth *Ventricle*, which towards the Spine, ends in a Point like that of a Pen.

These Branches, as they recede from the Trunk are divided into several lesser ones, which make a sort of a little Wood in the Substance of the *Cerebel*, whose Sides are easily divided into divers Pieces.

This Separation is made by the Help of a few large *Anfractus*. The small ones are more Numerous and Regular than those of the Brain, and form a Cortical Substance like so many Bowels, of which the *Corpus callosum* resembles the *Mesentery*.

The deepest *Anfractus* are in the Middle Process, which from its Figure is call'd the *Vermicular* one. It resembles a Ring which encompasses the *Cerebel*, or a Worm which bends back to bite its Tail.

It may be observ'd that the *Cerebel* in Men and Beasts, are very much alike, because the Vital and Natural Actions which depend on it, are perform'd in the same manner in one as in the other; whereas there is a very considerable Difference between the Brains in Men and other Animals; because the sensitive Functions of this Part are very different.

I think the Opinion of those Men is too Metaphysical, who pretend that the Furrows of the *Cerebel* ought to be Regular; because its Functions are all orderly; and that

that those of the Brain should be irregular by reason of the various Modes it exerts its Operations.

The *Cerebel* and Brain are both plac'd and supported on the *Medulla oblongata*, or rather they are only principal Branches of this great Trunk, while the Nerves are lesser ones.

The *Olfactory Nerves* arise from its Anterior Extremity, or its two first Eminences, which are call'd the *Striate* or *Channell'd Bodies*.

The *Optick Nerves* come from these two Eminences which are in the anterior Bodies between the *Striate Bodies* and the *Nates*; and for this reason they are call'd the *Optick Beds*, or *Thalami Optici*.

The *Motory Nerves* of the Eye arise from that Place of the *Medulla oblongata*, which lies between two Eminences, and the *Nates* or *Buttocks*.

The *Patheticks* spring from the middle Process, which joins the two Lateral ones, and is seated behind the *Testicles*.

The fifth and sixth Pair spring from the *Annular Processes*; the seventh and eighth Pair from the *Medulla oblongata* under the *Cerebel*.

The Ninth, Tenth and Eleventh, take their rise from the Extre'mity of the *Medulla oblongata* beyond the *Cerebel*.

Lastly, all the other Nerves, which are very Numerous, arise from the same Marrow when included in the Bones of the Spine of the Back; and like Organs, is compos'd of a large

large Pipe and several small ones. The great Tube is the Spinal Marrow, and the small ones are the Nerves which come from it. The Animal Spirit which flows thro' it, is like the Air which fills these Organs, and the Soul is like the Organist which plays them, determining the Spirits sometimes into one Nerve, and at other Times into another ; tho' often it has no share, the Exteriour Objects becoming then the Organist, and determining the Spirits in different Manners.

Tho' all Nerves arise from the Brain, yet it may be said it has none, because none is inserted into it. And therefore its proper Substance has no Sense, tho' it gives Sense to the whole Body, which shews the Falsity of that Axiom of the Schools, *That nothing can give what it has not.*

C H A P. XVIII.

Of the Method of Dissecting the Brain.

FOR the perfect View of all the Parts mention'd, I do not approve of making too deep Incisions into the Brain, reaching to its Ventricles, which is *Sylvius's* Way ; or making them beneath on the Sides of the *Medulla Oblongata*, as *Bartholine* teaches ; nor, of cutting the Brain Horizontally, as the most Part of our Surgeons still do. Lastly, tho' *Dr. Will's* Method be excellent, I would nor, like him

him, cut the two *Lateral Parietes* of the *Anterior Ventricles*, with the *Basis* of the Arch and the *Septum lucidum*, which cannot be demonstrated if we pursue these Steps: Nor would I at first cut the Brain thro' the Middle, for a Reason I shall hereafter give.

I am perswaded that the more a Part can be unravell'd without cutting its Substance, the better its natural Structure may be discover'd, which otherwise is much alter'd by the Incisions made into it. Therefore I admit that when all the Parts are exactly laid bare as far as they can be without tearing their Substance, to see as it were the Outside of Nature, there be as many Incisions made as you please to view the Inside, one serves to discover the Form of the Part, and the other its Fabrick. If any one desires to know the Artifice of a Machine, he cannot take a better way than to run thro' the Jointings and Separations which the Workman has left between its Parts: so the Anatomist, who would discover the Natural Machine of an Animal Body, cannot do better than to follow the Separation, which Nature has made; and this is the way that I have taken to demonstrate the Structure of the Brain.

After the Skull is neatly saw'd off all round without cutting the *Meninges*, and the Brain by this means is laid bare, I make an Incision with the Point of a Knife, and enter into the *Sinus* at their meeting, that is, at the lower End of the *Falx*, because they are largest there. Then introducing a Probe into each *Sinus*, I open the three upper ones, by cutting lengthways the Membrane which joins them; I follow the

Lon

Longitudinal to the *Crista Galli*, and the Lateral ones to the *Jugular Veins*, into which they discharge the Blood they carry.

By this, we see the *Jugular Veins* are considerably dilated, where they go out of the Head and make each of them a sort of a Gulph, where the Blood stops in the precipitate Course of its Descent, for fear it should fall with too great Rapidity, and the Brain be too soon evacuated, and the Heart oppress'd with too great Abundance.

After this, I slit the *Dura Mater* from the Process of the *Ethmoidal Bone*, which is call'd *Crista Galli*, quite to the Beginning of the Spinal Marrow to the Right and the Left; and I cut the Lateral *Falces*, which lie in that Valley which separates the Brain from the *Cerebel*, in order to turn the Brain back.

For this purpose having cut the *Dura Mater*, which makes a Bridle before, and hinders the turning it back, I divide in the neatest manner I can the *Mamillary Processes* of the *Olfactory Nerves* which lie beneath. This Separation may be handsomely made with the End of the Handle of a Dressing-Knife, cutting finely with the Point the small Ligaments which tie these Bodies together.

After this, I make an Incision on the *Olfactory Nerves*, to lay open a considerable Cavity, which most commonly is fill'd with Serosities in Beasts which graze; because their Nourishment being moister than that of other Animals, their Brain is so in proportion likewise. This Water serves to abate the excessive strong Scent of some Plants which wou'd offend the tender Substance of the Brain,

Brain, as the Humours of the Eyes preserve the *Retina* from the violent striking of the Rays of the Sun.

Altho' the Cavity of the *Olfactory Nerves* be not very sensible in Men; yet the yellow Water which *Dr. Willis* has seen flowing from the Nostrils of an Epileptick Woman, who had the Ventricles of the Brain full, makes us conjecture, that there are one or more insensible Ways which bring to the Nostrils part of the Moisture of the Brain, which contribute to furnish Matter for the Snor.

This done, I finish with cutting the *Olfactory Nerves*, which I continue to separate gently from the *Basis* of the Brain quite to their Rise. Then the Brain begins to invert it self by its own Weight, if it have room to incline backwards, and discovers the Optick Nerves, which must be divested of the two Membranes, to shew how they are united in the Place where they enter the Cavity of the Skull, how they are separated again above, and the difference of the Fibres which compose these two Nerves. In short, I follow them to the *Optick Eminences*, that is, to their Organ:

I do the same thing to all the other Nerves; and cutting all those Strings which tye the Brain to the Skull, I take it quite out of its Place. This Method of taking the Brain out of the Skull is good; but I shall shew another which is something more tedious, but is much better.

Having laid open the Artery of the Neck of an Animal, and made an Incision sufficient to receive the End of a Syringe; I make several In-

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Injections with a certain black Liquor, or rather with Wax melted and mix'd with Oil and Turpentine according to the Method of Mr. Swammerdam. This dextrous Anatomist has since found the way to do this with Quicksilver, which does it much better than Wax, because the Vessels fill'd with it are not so soon broken as the former. I continue these Injections till I find that the *Jugular Veins*, which I have also laid bare, are fill'd with it. Then I tie the Veins to stop the Liquor in the Brain, and view more commodiously the agreeable Ramification of the *Carotids*, and *Vertebral Arteries*, and the *Jugular Veins*, and the Communication of these three sorts of Vessels with one another.

To discover the Distribution of this Liquor in the Vessels of the Brain, I saw the Skull handsomely round; and having separated the *Dura Mater*, which lines it, I take the Cap which covers the Brain; after which, by the colour'd Injection, I trace the wonderful Distribution of the Vessels, and by the Help of this, find the Veins which empty themselves into the *Longitudinal Sinus*, and are inserted from before backwards in Beasts, and from behind forwards in Men.

Or to distinguish more easily and with one transient Glance of the Eye, the *Arteries* from the *Veins*, I begin with Injections into the *Jugular Vein*, having first evacuated the Blood, by pricking it with a Lancet, and ty'd the *Carotids*; and then I drive the Liquor forcibly with a Syringe to beat down the *Valves*, which might hinder the Distribution.

I tie the *Carotids* in the first Place, because it would be vain to let out the Blood in the *Jugular*, if I did not hinder new Blood from being pour'd in continually by the Arteries. I evacuate the Vein, that the Injection may find a more easie Passage, and give a better Tincture. In the last Place I begin these Injections rather thro' the Vein than the Artery; because if the Liquor shou'd be suppos'd to pass from the Artery into the Vein, they wou'd be fill'd with the same Liquor if I began the Injection thro' the Artery: Whereas on the contrary, if I first inject the Vein, not a Drop will pass into the Artery: And when the injected Wax is cold, if I then inject the Artery, it is plain nothing can pass out of it into the Vein, since that was fill'd with the former Injections.

And especially if this be done with Wax, which hardens immediately. The Syringe invented by *M. Swammerdam* (for the common ones will not serve) must be well heated, and the Injection made near a good Fire, while the Animal is yet alive; that the natural Heat of the Part may supply the Place of an Artificial one, which is procur'd by keeping the Part in warm Water; but there is no room to foment the Brain in this manner. Therefore it would be better to take it out if it could be done without breaking the Vessels of the *Dura Mater*, which adheres close to it; for then they might be heated with warm Water, which would hinder the Wax from congealing so soon.

Thus

Thus the *Arteries* and *Veins* are easily distinguish'd by their different Colour; and you will see where the *Veins* are inserted into the *Sinus*. You will see at the same time that one *Carotid* has a Communication with the other, both of them with the *Vertebral Arteries*, since the Injection made into one *Carotid* will not only be imparted to the other, but likewise to the *Vertebral Arteries*.

According to this Method you must have a Care not to cut the *Dura Mater* till the Brain be taken out and all its Vessels examin'd, which are dispers'd thro' its Membranes, because this cannot be done without cutting some one of these Vessels, which shedding all their Liquor, would frustrate such an Injection. But the *Dura Mater* must be carefully separated from the other Bones as it was in that Part of the Skull which was taken off.

When in making this Separation, you come to the *Sella Turcica*, you must tie them, to prevent the Effusion of the Liquor in them, and keep the other Arteries from emptying themselves. The same must be done to the *Jugular Veins* and the *Vertebral Arteries*, continuing till the *Dura Mater* be separated from the Bone and the Nerves are cut, that you may take out the Brain.

Then you may see all the Veins and Arteries which water the upper and lower part of the Brain, and run curiously thro' it. Then I slit the *Dura Mater* under the *Medulla oblongata* quite from the Olfactory Nerves to the Beginning of the Spinal Marrow, and separate it gently from the *Pia Mater*, to which it is ty'd

by a Number of small Vessels, bringing it to the Sides of the Brain, and upwards towards the *Falx*, which must be carefully separated from the Brain without tearing any thing. For this purpose you must gently dilate the great Folds which it lies, drawing it one way and another, and cutting at the same time all the small Membranes which tie the *Falx*, or join both Sides of the Folds together. You must continue to do this till you come to the Arch of the Brain, and then it will be easie to turn back the *Falx* together with the *Dura Mater* which covers the fore-Part of the Brain quite to the *Torcular*; for if you should pull in this Place, there would be danger of tearing of the fourth *Sinus*.

The Brain being thus stript I do the same to the Cerebel, turning back the *Dura Mater* which covers it quite to the Concourse of the four *Sinus*'s, and separating carefully, as well the *Lateral Falces* as the Longitudinal one, I raise the Membrane to the Right and the Left, gathering it at the Place of the *Torcular*, which I separate entirely from the Bodies which encompass it.

Then indeed you see the Brain naked, and you only see the Outside of this Mansion of the Soul. For to contemplate its Inside you must run through its four Chambers, and see what they contain. You must by degrees invert the upper Part of the Brain, or the fore-Arch after it is well separated from the Cerebel. By this you will discover in the first Place that part of the *Materia oblongata*, which lies between the Brain and the Cerebel, embrac'd by the Annular Protuberance.

ces, on the Edges of which lie the two Lateral Processes join'd by the middle Process.

If you reverse the Brain a little farther, having a Care of cutting the small Vessels which tie the upper Part to the lower, you will see the Testicles and Nates or Buttocks. In proceeding to reverse it you will come insensibly to the Edge of the Anterior Ventricles. There you will see two Arches of a Bridge form'd by the Arches of the Roof, and supported by three Pillars, two of which are on one Side, and the other in the middle. This last is call'd the *Basis* of the Roof, and the two other are the Extremities of the Arms, which are supported in the *Medulla oblongata*. Under this Bridge there runs a Torrent of Serofities, which coming from the third and fourth Ventricle, throws it self into the *Infundibulum*, passing first under this Bridge of *Vasculi*, which is at the Issue of the Ventricle, coming from before backwards.

After this I blew with a Tube under the Arms of the Roof, and the Anterior Ventricles are very much distended. In the mean time I put two probes over the Arches of the Vault, to raise them on both Sides. By means of this you may very well see the inside of the Ventricles. The two *Plexus Choroides* which are seated between the striated Bodies and the Optick Eminence, leaving the former before towards the Anterior Extremity of the Ventricles, and the latter, and the Optick Eminences behind towards the Posterior one. You see likewise the *Septum lucidum*, in which a slight Incision discovers a small Cavity, which some think to be the Seat of the Soul. There are some Anatomists who make the Incision on the

side of the *Septum*; but I make it on the R descending till I come to the Cavity, or blow gently with a Pipe into the Hole I have made.

In passing thus from the Brain to the Anterior Ventricles, I follow the fourth *Sinus* or *Torcular* and I find it makes a *Plexus* on the *Glandula Pinealis*, to which it cleaves very close, and by forking it self into two Parts in its Progress makes Part of the *Plexus Choroides*.

To return to the *Glandula Pinealis*, I separate it together with the *Medulla oblongata* to which it is only contiguous, as you may find if you take Pains to cut the Ties.

This Gland is at the entry of the third Ventricle, into which I introduce a Probe thro' the Hole call'd the *Anus*, and above *Varolius's* Bridge, thro' the Hole call'd *Vulva*, and above the *Varolius's* Bridge, for these are both Parts which lead into the same Ventricle. The Probe which is introduced, goes out beyond the Cerebel above the *Medulla oblongata*, without hurting the Substance of the Brain, as appears plainly enough if you open the third and fourth Ventricle, to see the Probe has not forc'd a Way by making a Breach thro' this soft Substance,

But the Communication of the third and fourth Ventricle is manifest without opening them by introducing a Probe, only by blowing with a Tube thro' the *Anus*, for then you will see a true Cloth which covers the *Medulla oblongata* between the Brain and the Cerebel to swell considerably, and you will perceive the Breath underneath the Cerebel if you put your Hand there because the Cloth which I mention'd hinders

from going out between the Testicles and the Cerebel. If you suspect the subtilty of the Breath might make a way where Nature has not form'd any, make Injections, and you will find the Liquor will come out beyond the Cerebel above the *Medulla oblongata*.

If you blow behind the Brain, or make Injections there, forcing towards the third Ventricle, you will see the same Cloth distended, and you will feel the Wind if you put your Hand before the Anus or the Vulva, or you will see the Liquor with which you make the Injections run through these two Holes.

Lastly, for the better understanding the Extent of this, and seeing at the same time the inside of the Cerebel, I separate it well from the *Medulla oblongata*, by cutting all the Vessels or Filaments which tie it down. Then inverting the Cerebel forwards, I see perfectly the fourth Ventricle, resembling in its Figure a Pen pointing backwards.

I discover at the same time the two ends of the Vermicular Process, the Head and the Tail, which are hid under the Cerebel, and a little beyond the Anterior, and I see the Place where this Tent is fastned to the Roof of the Cerebel, by reversing it a little on the Side; but as long as the Parts may be seen without Incision, I believe it is best to omit it.

The two Pillars of the Roof of the Cerebel, the regularity of the Furrows, and the upper Semicircle of the Vermicular Process are seen without any Operation, as soon as the *Dura Mater* which cover'd the Cerebel is remov'd. But to find the depth of these *Anfractus*, you need only dilate them

with the end of the Handle of your Dissecting Knife, which must be made flat like a *Spatula*, and cut at the same time the Filaments which tie together the two sides of these Folds, and you will find that they penetrate to the Callous Substance as well as in the Brain, on which you must make the same Operation to follow its Furrows.

All the Exterior Part of the *Medulla oblongata* may be seen without any other Operation than what is here describ'd.

Thus I demonstrate the Machine of the Brain to shew its Form; next, to know its Matter, I let it seeth for some time in a Pot of Water with the Spinal Marrow, which I have taken out of its Sheath, till the one and the other be half boild. Then taking them from the Fire and leaving them to cool, I begin to separate the Filaments of the Spinal Marrow, which is nothing more than a pretty large Bundle of small Nerves, which way is trac'd by one who is dextrous, to the Brain, and its Gray Substance where they all end.

At the end of each of these Filaments or Nervous Tubes there is a small Gland. This forms the Animal Spirit by filtering the most subtil part of the Blood, and this small Tube is plac'd beneath it to receive this Spirit and distribute it. Between the small Filaments which compose the Brain, there is a soft Medullary Substance, which chiefly appears in the striate Bodies.

Some of these Filaments which compose the Spinal Marrow end in the Brain, and others in the Cerebel. The Superior terminate in the Latter, and the Inferior and Middle ones in the Former. When you have done dividing the Spinal

nal Marrow, the *Medulla oblongata* and the Cal-
lous Body, you will find these three Bodies are
no more than a Collection of these Filaments, as
well in the Cerebel as the Brain, and because
they are larger in the Callous Body than the *Me-
dulla oblongata*, and their Interstices are larger,
and fuller of a Medullary Substance: It must not
be thought strange that the *Medulla oblongata* is
slenderer than the Callous Body, though both
are no more than a Collection of the same Fila-
ments.

I am very much inclin'd to believe (pardon the
Digression) that the Serosities which run into the
Ventricles are separated through this Medullary
Substance: For it is not probable there should be
the same Filtre in the Brain for Spirit and Phlegm;
since the Rectification of the one only consists in
the separation of these two Substances.

Lastly, in pursuing these Filaments to their In-
sertion in the Glands of the Cinereous Part, one
may observe the wonderful Ramification they
make in the Cerebel. You will see it still better
if you cut the Brain from before backward with
a very sharp Razor.

This Incision is not to be made before you ex-
amine that fine Contexture which covers the *Me-
dulla oblongata* between the Brain and Cerebel,
because being fastned to the Roof of this, it is
quite torn, and you cannot see its Origin.

When you have trac'd all these Filaments to
the striate Bodies, you will find them thicker,
and separated by larger Medullary Interstices
which form these Furrows or Channellings,
whence they take their Name. You will more
readily and better discover these, by making a

very superficial Incision on these Eminences, and scraping away with the back of the Knife the Ash-colour'd Substance which hides them. I will not stand to confute the Opinion of those who say these Channels are Artificial; because if you do not make your Incision after a certain manner they do not appear; for the same Reason would prove, that the Structure of every Part is Artificial too, because it would not appear without laying it open after a certain Manner.

After having trac'd the Nervous Filaments quite to the Ash-colour'd Substance of the Brain, you will see it is nothing more than a Collection of a certain number of Glands rang'd orderly by one another,

This is the way I take to discover the Form and Matter of the Brain. It is a little tedious I confess, and requires a great deal of Care, but it is also very good, and gives great Satisfaction.

After a profound Admiration of the Divine Structure of the Creator, I am assur'd you will not be of the Opinion of the Philosopher, who ascribes no other Use to it but to cool the Heart. For besides the great Distance, which must render it incapable of such an Office (especially according to the Opinion of the Philosopher who was ignorant of the Circulation) the most subtil Blood, which is rais'd to the Head, the Volatile Salts which are sublim'd in abundance as to the Head of a natural Alembick, the great number of Vessels from which it receives a constant Heat, like a *Balneum Mariae*, and the great quantity of Spirits with which it abounds, induce me to think the Brain is more hot than cold.

It seems to be the Principal Organ of all Animal Actions. Though a certain Woman found her Child stir briskly in her Womb, was born without a Brain. For there is ground to believe it might have these Motions before the Brain was disclos'd by any Caustick Liquor which had corroded and blackned the Internal Surface of the Skull, and before it ran through the great Hole of the Occiput, which this violent Corrosive had probably penetrated, leaving a black Spot where it passed.

G. 5

A.

[illegible]

A
TREATISE
 OF

*Straps, Swathing-Bands, Bandages,
 Bolsters, Splints, Tents, Vescatories,
 Setons, Cauteries, Leeches, Cupping-
 Glasses, and Phlebotomy.*

● **CH A P. XIX.**

*Of Straps, Swathing-Bands, Bandages,
 and Bolsters.*

W H A T is a Strap?
 It is a kind of Band commonly made
 use of for the Extension of Members
 in the reducing of Fractures and Luxations; or
 else in binding Patients, when it is necessary to
 confine them, for the more secure performing of
 some painful Operation: These sorts of Liga-
 tures have different Names, according to their
 several

several Uses, and often bear that of their Inventer.

What is the Matter whereof these Straps are compos'd ?

They may be of divers Sorts, but are usually made of Silk, Wool, or Leather.

What is a Swathing-Band ?

It is a long and broad Band that serves to wrap up and contain any Part with the Surgeons Dressings or Preparatives.

Of what Matter are these Swathing-Bands made ?

They are made at present of Linnen-Cloth, but in the time of Hippocrates, were made of Leather or Woollen-Stuff.

How many sorts of Swathing-Bands are there in general ?

There are two Sorts, viz. the Simple and Compound ; the former are those that are smooth, having only two Ends ; and the others are those which are trimm'd with Wool, Cotton, or Felt, or that have many Heads, that is to say, Ends fastned or cut in divers Places, according as different Occasions require.

What are the Conditions requisite in the Linnen-Cloth whereof the Swathing-Bands are made ?

It must be clean, and half worn out, not having any manner of Hem or Lift.

What are the Names of the different Swathing-Bands ?

There are innumerable, but the greater Part of them take their Denominations from their Figure or Shape ; as the Long, Streight, Triangular, and those which have many Heads, or are trimm'd.

What

What is a Bandage ?

It is the Application of a Swathe, Roller, or Fillet to any Part.

How many sorts of Bandages are there ?

As many as there are different Parts to be bound ; some of them being Simple, and others Compound : The former are those that are made with an uniform Band ; as the Circular, that with Edgings, the Spiral, the Revers'd, and divers other Sorts : The Compound are those that consist of many Bands set one upon another, or sew'd together ; or else those that have many Heads, They have also particular Names taken from the Inventers of them, or from their Effect ; as *Expulsive* Bandages to drive back, *Attractive* to draw forward, *Contentive* to contain, *Retentive* restrain, *Divulsive* to remove, *Agglutinative* to rejoin, &c.

There are others whereto certain peculiar Names are appropriated ; as *Bridles* for the lower Jaw, *Slings* for the Chin, the back part of the Head, Shoulder, and *Perinaeum* ; *Scapularies* for the Body, after the manner of the *Scapularies* of Monks ; *Trusses* for Ruptures ; *Stirrups* for the Ankle-bones of the Feet, in letting Blood, and upon other Occasions. Lastly, there are an infinite Number of Bandages, the Structure whereof is learnt by Practice, and observing the Methods of able Surgeons, who invent them daily, according to their several Manners ; and the first Ideas of these can only be taken in reading Authors that have treated of them.

What are the general Conditions to be observ'd in the Bandages ?

There

There are many, *viz.* 1. Care must be taken that the Bands be roll'd firm, and that they be not too strait nor too loose. 2. They are to be united from time to time in Fractures; they must also be taken away every three or four Days, to be re-fitted. 3. They must be neatly and conveniently roll'd, that the Patient may not be uneasy or disquieted.

What ought to be observ'd in fitting the Bolsters?

Care must be taken to make them even, soft, and proportionable to the bigness of the Part affected; to trim them most in the uneven Places, that the Bands may be better roll'd over them, and to keep them continually moistned with some Liquor proper for the Disease, as well as the Bands.

A
TREATISE
 OF
Chirurgical Diseases.

CHAP. I.

Of Tumours in general, Abscesses or Impostumes, Breakings out, Pustules and Tubercles.

WHAT is a Tumour?

A Tumour is a Rising or Swelling rais'd in some Part of the Body by a settling of Humours,

How is this settling of Humours produc'd?

Two several ways, viz. by Fluxion and Congestion.

What is the settling by Fluxion?

It

It is that which raiseth a Tumour all at once, or in a very little space of time, by the Fluidity of the Matter.

What is the settling by Congestion?

It is that which produceth the Tumour by little and little, and almost insensibly, by reason of the slow Progress and Thickness of the Matter.

Which are the most dangerous Tumours, those that arise from Fluxion, or those that derive their Original from Congestion?

Those that proceed from Congestion, because their thick and gross Matter always render them obstinate, and difficult to be cur'd.

Whence do the differences of Tumours proceed?

They are taken, *first*, from the natural Humours, *Simple*, *Mix'd*, and *Alter'd*: *Simple*, as the *Phlegmon*, which is made of Blood, and the *Erysipelas* of Choler: *Mix'd*, as the *Erysipelatous Phlegmon*, which consists of Blood mingled with a Portion of Choler; or the *Phlegmonous Erysipelas*, which proceeds from Choler intermix'd with a Portion of Blood: *Alter'd*, as the *Meliceris*, which is compos'd of many Humours, that cannot be any longer distinguish'd by reason of their too great Alteration. *Secondly*, the difference of Tumours is taken from their likeness to some other thing, as the *Carbuncle* and the *Talpa*, the former resembling a burning Coal, and the other a *Mole*, according to the Etymology of their *Latin* Names. *Thirdly*, From the Parts wherein they are situated; as the *Ophthalmia* in the Eyes, and the *Quinsie* in the Throat. *Fourthly*, From the Disease that causeth 'em, as *Venereal* and *Pestilential Buboes*. *Fifthly*, From certain Qualities found in some, and not in others; as the *Ex-*
cysted

encysted Tumours, which have their Matter inclos'd within their proper *Cyst*; or such as are contain'd in a Bag, or Membranes; and so of many others.

How many kinds of Tumours are there that comprehend at once all the particular Species?

There are four in Number, *viz.* the *Natural* Tumours, the *Encysted*, the *Critical*, and the *Malignant*.

What are Natural Tumours?

They are those that are made of the four Humours contain'd in the Mass of the Blood, or else of many at once intermix'd together.

What are the four Humours contain'd in the Mass of Blood?

They are Blood, Choler, Phlegm and Melancholy, every one whereof produceth its Particular Tumour: Thus the Blood produces the *Phlegmon*, Choler the *Erysipelas*, Phlegm the *Oedema*, and Melancholy the *Sbirrus*. The Mixture of these is in like manner the Cause of the *Erysipelatous Phlegmon*, the *Oedematous Phlegmon* or *Phlegmonous Erysipelas*; and the *Phlegmonous Oedema*, according to the quality of the Humours, which are predominant, from whence the several Tumours take their Names.

What are the Encysted Tumours?

They are those, the Matter whereof is contain'd in certain *Cystes*, or Membranous Bags; as the *Meliceris*, and the *Struma* or Kings-Evil.

What are Critical Tumours?

They are those that appear all at once in acute Diseases, and terminate them with good or bad Success.

What are Malignant Tumours?

They

They are those that are always accompany'd with extraordinary and dreadful Symptoms, and whose Consequences are also very dangerous; as the Carbuncle in the Plague.

What are Impostumes or Abscesses, Breakings out and Pustules?

Indeed it may be affirm'd, that all these kinds of Tumours scarce differ one from another, except in their size or bigness: nevertheless, to speak properly, by the Names of Impostumes or Abscesses are understood gross Tumours that are suppurable, or may be dissolv'd, and by those of Breakings out and Pustules, only simple Pusles, Wheals, or small Tumours, that appear in great Numbers, and which frequently do not come to Suppuration; some of them consisting of very few Humours, and others altogether of a dry Matter.

What difference is there between a Tumour and an Impostume or Abscess?

They differ in this Particular, that all Tumours are not Impostumes nor Abscesses; but there is no Impostume nor Abscess that is not a Tumour: As for Example, Wens and Ganglions are Tumours, yet are not Abscess nor Impostumes; whereas these last are always Tumours, in regard they cause Bunches and Elevations.

C H A P. II.

Of the general Method to be observed in the curing of Tumours.

WHAT ought a Surgeon chiefly to observe in Tumours, before he undertake their Cure?

He ought to know three things, viz. 1. The Nature or Quality of the Tumour. 2. The time of its Formation. And 3. Its Situation: The Quality of the Tumour is to be known, because the Natural one is otherwise handl'd than that which is *Encysted*, *Critical* and *Malignant*. As for the time of its Formation, it is four-fold, viz. the Beginning, Increase, State and Declination, wherein altogether different Remedies are to be apply'd. The Situation of the Tumour must be also observ'd, because the Dressing and Opening of it ought to be as exact as is possible, to avoid the meeting with an Artery or neighbouring Tendon.

How many ways are all the Tumours that are curable, terminated?

They are terminated after two manners, viz. either by dissolving them, or by Suppuration.

Are not the Schirrus and the Ecthyma or Gangrene, two means that sometimes serve to terminate and cure Impostumes?

Yes; but it is done imperfectly, in regard that a Tumour or Impostume cannot be said to be absolutely cur'd, as long as there remains any thing of the Original Malady, as it happens in the

the Schirrus, where the Matter is hardned by an imperfect dissolving of it, or when the Impostume degenerates into a greater and more dangerous Distemper, as it appears in the *Esthimenus* or *Gangrene* that succeeds it.

Which is the most effectual means of curing Impostumes, that of dissolving, or that of bringing 'em to Suppuration?

That of dissolving them is without doubt the most successful, and that which ought to be us'd as much as is possible; nevertheless some Cases are to be excepted, wherein the Tumours or Abscesses are Critical and Malignant: For then the way of Suppuration is not only preferable, but must also be procur'd by all sorts of means, even by opening; which may be done upon this Occasion, without waiting for their perfect Maturity.

What are the Precautions whereto a Surgeon ought to have regard, before he undertake the opening of Tumours?

He must take Care to avoid cutting the Fibres of the Muscles, and in great Abscesses of discharging the corrupt Matter all at once, to prevent the Patient's falling into a Swoon.

Ought the opening of Tumours always to be made longitudinally, and according to the direct Course of the Fibres?

No, it is sometimes necessary to open them with a Crucial Incision, when they are large, or when a *Cystis* or Membranous Vehicle is to be extirpated.

How many sorts of Matter are there that issue forth in the Suppuration of Tumours?

There

There are four Sorts, *viz.* Pus, Ichor, Sanies, and Virus.

What is Pus ?

It is a thick Matter, and white as Milk.

What is Ichor ?

It is a thick Matter like the Pus, but of divers Colours.

What is Sanies ?

It is a watry Matter that riseth up in Ulcers, almost after the same manner as the Sap in Trees.

What is Virus ?

It is a kind of watry Matter, being whitish, yellowish, and greenish at the same time ; which issueth out of Ulcers, very much stinking, and is endn'd with corrosive and malignant Qualities.

How many general Causes are there of Tumours ?

There are three, *viz.* The Primitive, the Antecedent, and the Conjunct : The Primitive is that which gives Occasion to the Tumour : As for Example, a Fall or a Blow receiv'd. The Antecedent is that which supplies it with Matter, such is the Mass of Blood that thickens and maintains the *Pblegmon*. Lastly, the Conjunct Cause is the overflowing Blood or Matter, which immediately forms the Tumour.

What regard ought to be had to these three sorts of Causes in the Cure ?

The Primitive Cause may be prevented by avoiding the Falls, Blows, or other Hurts, and the Antecedent by diminishing the Plethory of the Blood, and cooling the whole Mass by Phlebotomy. The Conjunct Cause, which is the overflowing of the Blood, may be also remov'd in dispersing it by dissolving, or else in discharging it by Suppuration.

What

What is a Crisis ?

It is a sudden settling of Humours, which happens in Diseases, whereby they are usually terminated.

How are these critical Settlements effected ?

By the strength of Nature, which either expels the peccant Humours by the *Anus*, *Bladder*, &c. or carries them into the Habit of the Body; for in the former she causeth Fluxes of Humours, Urine and Blood, as in the other she excites Sweatings, Tumours, and even a Gangrene it self.

In what Parts do the Critical Tumours usually arise ?

In the *Glandules*, which the Ancients call'd the *Emunctories* of the Brain, Heart and Liver; for they gave the Name of *Emunctories* of the Brain to the thick *Glandules* which lie under the Ears, that of the *Emunctories* of the Heart to those that are under the Arm-pits; and that of the *Emunctories* of the Liver, to those under the Groin. Now Malignant Tumours may arise in all these Parts, but the Venereal happen only in the Groin.

CHAP.

CHAP. III.

Of Natural Tumours.

ARTICLE I.

Of the Phlegmon and its Dependencies.

WHAT is a Phlegmon ?

It is a red Tumour occasion'd by the Blood diffus'd in some Part, wherein it causeth Extension, Pain and Heat with Pulsation.

Are Aneurisms and Varices which are Tumours made by the Blood, to be reckon'd among the Phlegmons ?

No, because the Blood that forms the *Aneurisms* and *Varices*, is not extravasated nor accompany'd with Inflammation, but only a Tumour of Blood proceeding from the Dilatation of the Arteries and Veins.

May Echymoses or Contusions consisting of extravasated Blood be esteem'd as Phlegmons ?

By no means, in regard that it is not sufficient that the Blood be extravasated for the producing of a *Phlegmon* ; it must also cause Pain, Heat, and a beating with Inflammation, which is not to be found in the *Echymoses*, except in great ones, after they have been neglected for a long time ; where the corrupted Blood ought to be let out immediately,

diately, to prevent the Inflammation, over much Suppuration, and many other ill Consequences.

Is the Phlegmon always compos'd of pure Blood?

No, it may happen sometimes to partake of Choler, Phlegm, or Melancholy; on which account it is nam'd an *Erysipelatous*, *Oedematous*, or *Schirous Phlegmon*, always retaining the Name of the predominant Humour, which is the Blood; and so of the others.

R E M E D I E S.

What are the Remedies proper for a Phlegmon?

They are of two Sorts, viz. General and Particular; the former having regard to the antecedent Cause, and the other to the Conjunct. The *Phlegmon* is cur'd in its Antecedent Cause, by Phlebotomy or letting Blood, by good Diet, and sometimes by Purgations; by which means the Plethory, Heat, and Alteration of the Blood is diminish'd: But Fomentations, Cataplasms, and Plaisters facilitate the Cure in the conjunct Cause, either by dissolving the Tumour, or bringing it to Suppuration.

At what time is the opening of a Vein necessary?

In the beginning and increase.

What are the Remedies proper to be us'd immediately upon the first appearing of the Tumour?

They are Resolvents and Anodynes; as Chervil boil'd in Whey, adding a little Saffron to wash the Tumour, lay on Linen-Cloths soak'd in this Decoction, removing them often, and applying the Chervil with them.

Or else take the Urine of a healthful Person, wherein is boild an Ounce of Sulphur for each Glas, and bath the Tumour with it.

The Sperm of Frogs is also made use of to very good purpose, either alone, or with Lime-water and Soap mixt together; or Oak-Leaves and Plantane beaten small, and apply'd. But Care must be more especially taken to avoid cooling Medicines, Oils and Grease, which are pernicious in great Inflammations.

What ought to be done in the increase of the Tumour and Pain?

They are to be asswag'd by mollifying and dissolving Medicines; to which end a Cataplasme or Pultis is to be made with the Leaves of Elder, Wallwort, or Dwarf-Elder, Mallows, Violet-Plants, Camomile, and Melilot; whereto is added beaten Line-seed; causing the whole Mass to be boild in Whey, and allowing to every Pint, thereabouts, the Yolk of an Egg, twenty Grains of Saffron, a quarter of a Pound of Honey, and the Crumb of White-bread, till it comes to a necessary Consistence. Or else take Cow's-Dung instead of the abovementioned Herbs, and mix with it all the other Ingredients, to make a Cataplasme, which must be renew'd at least every twelve Hours.

What is to be done in this State?

If the Tumour cannot be dissolv'd (as was intended) it must be brought to Suppuration by Cataplasms, consisting of these Ingredients, viz. Garlick, Roots of White Lilies roasted under Embers, Milk, and *Unguentum Basilicon*.

Or else only take a Glas of Milk, in which an Ounce of Soap is dissolv'd, to wet the Lin-

nen apply'd to the Tumour ; and let it be often reiterated : Otherwise make use of Sorrel boil'd with Fresh Butter, and a little Leaven or Yeast. The Plaister *Diasulphuris* is also most excellent either alone, or if you please, mixt with *Diachylon* and *Basilicon*.

What is to be done in the Declination after the Suppuration ?

The Ulcer must be at first gently dry'd with a Plaister of *Diasulphuris* or *Diachylon*, and afterward that of *Diapalma* may be us'd, and Cereuse or White-Lead.

What Method is to be observ'd in case there be any disposition toward a Gangrene ?

It is requisite during the great Inflammation to make use of good Vinegar, in an Ounce whereof is dissolv'd a Dram of White Vitriol, with as much *Sal Ammoniack*, to bath the Tumour : Or else take the Tincture of Myrrh and Aloes, with a little *Unguentum Aegyptiacum*, and afterward make a Digestive of Turpentine, the Yolk of an Egg, and Honey, mingling it with a little Spirit of Wine, or Brandy, if there remains any Putrefaction or Rottenness.

Remedies for Aneurisms and Varices.

What is to be done in order to cure an Aneurism

When it is little, as that which happens after an Operation of Phlebotomy, or letting Blood ill perform'd, it may be sufficient to lay upon the affected Part a thin Plate of Lead, or else a Piece of Money or Counter wrapt up in a Bolster, and to bind it on very strait: But a
Piece

Piece of Paper chew'd is much better for that purpose.

If the *Aneurism* be considerable an Astringent Plaister may be us'd, such as the following.

Take *Bolus*, Dragon's Blood, Frankincense, Aloes, and *Hypocystis*, of each a Dram; mingle the whole with two beaten Eggs, and add Wax to give it the consistence of a Plaister, which may be apply'd alone, or mixt with an equal Portion of *Emplastrum contra Rupturam*, always making a small Bandage to keep it on. *Emplastrum de Cicuta* hath also a wonderful Effect.

When the *Aneurism* is excessive, it is absolutely necessary to proceed to a Manual Operation, the manner whereof shall be shewn hereafter in the Treatise of great Operations.

What is requisite to be done in the Varices?

Varices are not generally dangerous, but even conduce to the Preservation of Health; nevertheless, if they become troublesome by reason of their greatneſs, and the Pains that accompany them, they may be mollify'd with the following Remedy.

Take the Mucilages of the Seeds of *Psyllium* and Line, of each two Ounces; of *Populeon* two Ounces; *Oleum Lumbricorum* & *Hyperici*, of each one Ounce; and of the Meal of Wheat one Ounce, adding Wax to make the Consistence of a Plaister; part of which spread upon Linen or Leather, must be apply'd to the *Varix*, and bound on with a small Band.

If the Blood abound too much, it may be discharg'd by the Application of Leeches, or by a Puncture made with a Lancer: Afterward lay upon the Part a piece of Lead sew'd up in a Cloth,

and let it be kept close with a proper Bandage. Otherwise you may make use of an Astringent, such as this.

Take a Pomegranate, cut it in pieces, and boil it with as much Salt as may be taken up with the tip of your Fingers, in a Gallon of strong Vinegar; then dip a Sponge in this Vinegar, apply it to the *Varix*, bind it on, and continue the use of it twice a Day for a Month together.

Remedies for Echymoses, Contusions and Bruises.

How are Echymoses to be treated?

All possible means must be us'd to dissolve 'em, by laying Slices of raw Beef upon the Part, renewing them very often, or applying Linen Rags dipt in Spirit of Wine impregnated with Saffron.

They may be also dissolv'd with the Roots of Briony, rasp'd and apply'd thereto, or else with Plaister or Mortar, Soot, Oil of Olives, and *Unguentum Divinum*, a Mixture whereof being made, is to be put between two Rags, and laid upon the Tumour or Swelling.

If the *Echymosis* happens in a Nervous Part, Balsam of Peru may be us'd, or, for want thereof, *Oleum Lumbricorum* & *Hyperici*, with lukewarm Wine, with which the Compresses must be soak'd to be laid upon it.

When the *Echymosis* is great, and much Blood is diffus'd between the Skin and the Flesh, the safest way is to make an Opening to let it out, lest a too plentiful and dangerous Suppuration should ensue, or even a Gangrene it self. However,

ver, a Surgeon ought to proceed in the curing of an *Echymosis* in the Face with great Circumspection, which must be always prepar'd for Incision.

Of Phlegmonous Tumours or Impostumes, and of Remedies proper for them.

What are the Tumours or Impostumes that partake of a Phlegmon?

They are the *Bubo*, Carbuncle, *Anthrax*, *Furunculus*, *Phyma*, *Phygeton*, *Panaritium* or *Paronychia*, Burn, Gangrene, and Kibe or Chilblain.

What is a Bubo?

A *Bubo* is a Tumour which ariseth in the Groin, being accompany'd with Heat, Pain, Hardness, and sometimes a Fever.

What is a Carbuncle?

A Carbuncle is a hard Swelling, red, burning, and inseparable from a Fever: It is colour'd with a black Crust or Scab, that afterward falls off at the Suppuration, leaving a deep and dangerous Ulcer, and which sometimes doth not suppurate at all.

What is an Anthrax?

The *Anthrax* is very near the same thing as the Carbuncle, only with this difference, that the latter always appears in the Glandulous Parts, and the *Anthrax* every where else.

What is a Furunculus?

It is a kind of Boil, or benign Carbuncle, which somewhat resembles the Head of a Nail, and is on that account call'd *Clou* by the French,

causing Pains, as if a Nail were driven into the Flesh.

What is a Phygeton ?

The *Phygeton* is a small, red, and inflam'd Exuberance, situated in the Miliary Glandules of the Skin, where it causeth a pricking Pain, without Suppuration.

What is a Phyma ?

The *Phyma* appears after the same manner as the *Phygeton*, and suppurates.

What are the Remedies proper for all these Sorts of phlegmonous Tumours and Imposthumes ?

They are Cataplasms and Plaisters, Anodyne, Emollient, Resolvent, and Suppurative, which are us'd proportionably as in the *Phlegmons*.

What is a Gangrene, Sphacelus, or Esthiomenus ?

The *Gangrene* and *Sphacelus* signifie the same thing, nevertheless are commonly distinguish'd; the former being a Mortification begun, and the *Sphacelus* an entire or perfect Mortification; call'd also *Necrosis* and *Sideratio*. An *Esthiomenus* is a Disposition to Mortification, discover'd by the softness of the Part; and a *Gangrene* is defin'd to be a Mortification of a Part, occasion'd by the Interception of the Spirits, and the Privation of the natural Heat.

What are the Causes of a Gangrene in general ?

Every thing that hinders the natural Heat from exerting it self in a Part; as strong Ligatures, astringent or resolvent Medicines, not conveniently us'd in great Inflammations, a violent Hæmorrhage, or Old Age, whereby the Spirits are exhausted; the bitings of Mad Dogs, excessive Cold, &c.

By what Signs is the Gangrene known ?

It is discover'd by the livid Colour of the Skin, which departs from the Flesh, the softness, coldness, and insensibility of the Part; and sometimes by its dryness and blackness, from whence exhales a cadaverous Stench, with *Sanies* issuing forth after Punctures or Scarifications made therein. Lastly, a Gangrene is perceiv'd by the cold Sweats, Swoonings, *Syncopes*, and *Deliriums* that invade the Patient, and which are all the Fore-runners of approaching Death.

Is a Gangrene only found in the Flesh, and soft Parts of the Body?

It happens also in the Bones, and is then call'd *Caries*,

How is this Caries or Gangrene of the Bone discover'd, when it lies hid under the Flesh?

It is known by the black Colour of the Neighbouring Flesh, the stink of the *Sanies* that comes away, the intolerable Pains felt thereabouts, which are fix'd and continual before the Impostume and Ulcer appear, but when the Ulcer is made, a kind of roughness may be perceiv'd in the Bone.

R E M E D I E S.

What are the Remedies proper for a Gangrene?

They are those that take away the mortified and corrupt Parts, and recal the natural Heat; both which Indications are exactly answer'd in the Extirpation of what is already corrupted, with the Knife; and the Restauration of the natural Heat by the following Remedies.

H 4

Take

Take an Ounce of good Vinegar, steeping therein a Dram of White Vitriol, with as much *Sal Ammoniack*: Let it be us'd in bathing the Part; and apply thereto Compresses well soak'd in the same Liquor. This Remedy is convenient in the first Disposition toward a Gangrene: Or, if you please, you may make use of the Yellow Water, which is made with Corrosive Sublimate and Lime-Water; taking, for Example, half a Dram of Corrosive Sublimate to be infus'd in a Pint of Lime-Water.

But a Tincture of Myrrh and Aloes is more efficacious, wherein *Unguentum Ægyptiacum* is steep'd, or else Lime-Water kept for that purpose, in which have been boil'd two Ounces of Sulphur or Brimstone, with two Drams of *Mercurius Dulcis*; adding four Ounces of Spirit of Wine. This makes an excellent *Phagedenick* Water, with which the Part may be bath'd, and the Compresses soak'd.

If the Gangrene passeth to the Bone, the Ulcer must be immediately cleans'd with Brandy, and *Euphorbium* afterward put into it, laying also some upon the Compresses, and abstaining from all sorts of Oily and Greasie Medicines. But if these Remedies prove unprofitable, recourse is then to be had to the Knife, Fire, or Amputation; the manner of performing which several Operations, is explain'd hereafter.

What are Kibes or Chilblains?

They are painful Tumours, which are often accompany'd with Inflammation; they happen more especially in the Nervous and outward Parts, as the Heel, and are so much the more sensibly

sensibly felt, as the Air and Cold are more sharp and vehement.

What is to be done in order to cure these Kibes or Chilblains?

The Heel or affected Part must be wash'd and dip'd in Wine boil'd with Allum and Salt, whereof a Cataplasm may be afterward made, by adding Meal of Rye, Honey, and Brimstone. The Juice of a hot Turnep apply'd, with *Unguentum Rosatum*, is also very good, or *Petroleum* alone.

What is a Panaritium?

Panaritium or *Paronychia*, is a Tumour which generally ariseth in the Extremity of the Fingers, at the Root of the Nails: It is red, and accompany'd with very great Pain, even so exquisite, that the whole Arm is sensible thereof, insomuch that a Fever sometimes insues, and a Gangrene; the Humour being contain'd between the Bone and the *Periosteum*, or that little Membrane with which it is immediately invested.

What Remedies are convenient for the curing a Panaritium?

Anodyne Cataplasms are to be first applied; that is to say, such as serve to assuage excessive Pain, as that which is compos'd of Milk, Line-seeds beaten, large Figs, the Yolk of an Egg, Saffron, Honey, and *Oleum Lumbricorum*, with the Crumb of White-Bread. Afterward you may endeavour to dissolve it, by applying Oil of Almonds, *Saccharum Saturni*, and Ear-Wax, or else Balsam of Sulphur. The *Emplastrum de Mucilaginis* and

Take an Ounce of good Vinegar, steeping therein a Dram of White Vitriol, with as much *Sal Ammoniack* : Let it be us'd in bathing the Part; and apply thereto Compresses well soak'd in the same Liquor. This Remedy is convenient in the first Disposition toward a Gangrene : Or, if you please, you may make use of the Yellow Water, which is made with Corrosive Sublimate and Lime-Water; taking, for Example, half a Dram of Corrosive Sublimate to be infus'd in a Pint of Lime-Water.

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If the Gangrene passeth to the Bone, the Ulcer must be immediately cleans'd with Brandy, and *Euphorbium* afterward put into it, laying also some upon the Compresses, and abstaining from all sorts of Oily and Greasie Medicines. But if these Remedies prove unprofitable, recourse is then to be had to the Knife, Fire, or Amputation; the manner of performing which several Operations, is explain'd hereafter.

What are Kiles or Chilblains?

They are painful Tumours, which are often accompany'd with Inflammation; they happen more especially in the Nervous and outward Parts, as the Heel, and are so much the more sensibly

sensibly felt, as the Air and Cold are more sharp and vehement.

What is to be done in order to cure these Kibes or Chilblains?

The Heel or affected Part must be wash'd and dip'd in Wine boil'd with Allum and Salt, whereof a Cataplasm may be afterward made, by adding Meal of Rye, Honey, and Brimstone. The Juice of a hot Turnep apply'd, with *Unguentum Rosatum*, is also very good, or *Petroleum* alone.

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Panaritium or *Paronychia*, is a Tumour which generally ariseth in the Extremity of the Fingers, at the Root of the Nails: It is red, and accompany'd with very great Pain, even so exquisite, that the whole Arm is sensible thereof, insomuch that a Fever sometimes insues, and a Gangrene; the Humour being contain'd between the Bone and the *Periosteum*, or that little Membrane with which it is immediately invested.

What Remedies are convenient for the curing a Panaritium?

Anodyne Cataplasms are to be first applied; that is to say, such as serve to assuage excessive Pain, as that which is compos'd of Milk, Line-seeds beaten, large Figs, the Yolk of an Egg, Saffron, Honey, and *Oleum Lumbricorum*, with the Crumb of White-Bread. Afterward you may endeavour to dissolve it, by applying Oil of Almonds, *Saccharum Saturni*, and Ear-Wax, or else Balsam of Sulphur. The *Emplastrum de Mucilagibus*

and *Diasulphuris* dissolv'd in Wine, is also a most excellent Resolvent and Anodyne.

If it be requisite to bring this Humour to Suppuration, the Roots of white Lillies roasted under Embers may be added to the preceeding Cataplasme; or else a new Cataplasme may be made with Sorrel boil'd, Fresh Butter and a little Leaven.

What is a Burn?

A Burn is an Impression of Fire made upon a Part, wherein remains a great deal of Heat, with Blisters full of *Serosities*, or perhaps an *E-scarr*, accordingly as the Fire hath taken more or less Effect.

What are the Remedies proper for a Burn?

A Burn is cur'd by the speedy Application of fresh Clay or Earth reiterated many times successively: By that of Onions pounded in a Mortar, *Unguentum Rosatum*, and *Populeon*, mixt with the Yolk of an Egg and unslack'd Lime: Cray-Fishes or Crabs pounded alive in a Leaden Mortar; and a great number of other Things.

If the Burn be in the Face, you may more especially take the Mucilages of the Seeds of Quinces and *Psyllium*, and Frog's Sperm, of each an equal Quantity, adding to every four Ounces twenty Grains of *Saccharum Saturni*. This Composition may be spread on the Part with a Feather, and cover'd with fine brown Paper. It is an admirable and approv'd Receipt.

If the Burn had made an *E-scarr* or Crust, it may be remov'd with fresh Butter spread upon a Colewort or Cabbage-Leaf, and apply'd hot. But in case the Crust be too hard, and doth not fall off

off, it must be open'd, to give Passage to the Pus or corrupt Matter, the stay of which would occasion a deep Ulcer underneath. The same Method is to be observ'd in the Pustules or Blisters, two days after they are rais'd, applying also the Ointment of Quick-Lime, Oil of Roses, and Yolks of Eggs.

ARTICLE II.

Of the Erysipelas and its Dependencies.

WHAT is an Erysipelas?

An *Erysipelas*, commonly call'd *St. Anthony's Fire*, is a small Elevation produc'd by a Flux of Choler dispers'd and running between the Skin and the Flesh. It is known by its yellowish Colour, great Heat, and Prickings.

REMEDIES.

What are the Remedies proper for an Erysipelas?

An *Erysipelas* that ariseth in the Head and Breast is not without Danger, and the Cure of it ought to be undertaken with great Care in the Application as well of Internal as External Remedies: For it is requisite to take inwardly a Dose of Diaphoretick *Antimony*, Crabs-Eyes, Egg-shells, Powder of Vipers, and other Medicines; as also Potions that have the like Virtues, such as the following: Take Four Ounces of Elder-Flower-Water, adding thereto a Scruple of the Volatile Salt of Vipers or Harts-Horn, with an Ounce of Syrup of red Poppies.

Phle-

Phlebotomy or Blood-letting hath no place here, unless there be a great Plethory, but frequent Clysters are not to be rejected, viz. such as are made of Whey, Chervil, Succory and Violet-Plants, adding a Dram of Mineral Crystal dissolv'd with two Ounces of Honey of Violets.

As for outward Applications, Linen Rags dipp'd in the Spirit of Wine impregnated with Camphire and Saffron, are to be laid upon the Tumour, and renew'd as fast as they are dry'd. An equal Quantity of Chalk and Myrrh beaten to Powder, may also be strew'd upon a Sheet of Cap-Paper spread with Honey, and apply'd to the Part.

If the Heat and Pain grow excessive, take half a Dram of *Saccharum Saturni*, Twenty Grains of Camphire, as much *Opium*, with two Drams of red Myrrh: Infuse these in a Gallon of White-wine: Let this Liquor be kept to soak the Cloths that are laid upon the *Erysipelas*, which must be often renew'd. But to dress the Face, a Canvas Cloth may be us'd, which hath been dipp'd in a Medicine prepar'd with a Gallon of Whey, Two Yolks of Eggs, and a Dram of Saffron.

Moreover amidst all these Remedies, it is necessary to oblige the Patient to keep to a good Diet, and to prescribe for his Ordinary Drink a Diet-Drink made of Harts-Horn, the Tops of the lesser Centaury, Pippins cut in Slices with their Skins and Liquorish; a little good Wine may be also allow'd with the Advice of the Physician.

Of Erysipelatous Tumours or Impostumes,
and their Remedies.

What are the Tumours or Impostumes that partake of the Nature of an Erysipelas ?

They are the dry and moist *Herpes*, the former being that which is call'd the *Tetter* or *Ring-worm*, and the other a kind of Yellow Bladders, Pustules or Wheals, that cause itching, and raise much corroding Ulcers in the Skin : To these may be added divers sorts of Scabs and Itch.

The Remedies prescrib'd for the *Erysipelas* may be us'd for both these kinds of *Herpes* ; as also Lotions for Bathing Liquors made of Lime-Water and a Decoction of Wormwood and *Sal Armoniack*, allowing half a Dram to four Ounces of Liquor. Or else take half a Dram of *Sal Saturni*, and put into a Glass of the Decoction of Fumitory or Chervil. You may also make use of the Oil of Tartar *per deliquium*, to make a Liniment either alone, or mingl'd with the above-mention'd Decoctions.

A R T I C L E III.

Of the Oedema.

WHAT is the Oedema ?

It is a white soft Tumour, with very little sense of Pain, which ariseth from the Settling of a pituitous Humour.

What are the Remedies proper for an Oedema ?

They are Fomentations, Cataplasms, Liniments and Plaisters.

The

The Fomentations are made with Bundles of Wall-wort, or Dwarf-Elder, thrown into a hot Oven after the Bread is bak'd, and sprinkl'd with Wine. Afterward being taken out smoaking, they are unty'd, open'd, and wrapp'd about the Part, putting a warm Linen-Cloth over them. This Operation is to be re-iterated; and by this means the Humour is dissolv'd thro' Transpiration by Sweat.

The Cataplasms are compos'd of Camomile, Melilot, St. John's-wort, Sage, Wall-wort, Pelitory of the Wall, Roots of Briony and Onions, all boil'd together in White Wine with Honey, adding, if you please, a few Cummin or Fennel-Seeds beaten. Cataplasms are also made of Horseradish and the Seeds of Cummin beaten, which are boil'd in strong Vinegar, and mix'd with Barley-Meal to the Consistence of Pap.

The Plaisters are prepar'd with an Ounce of *Diapalma*, half an Ounce of *Martiatum*, a Pint of Oil of Lilies, half an Ounce of Cummin-Seeds powder'd, half a Dram of *Sal Ammoniack*, and an Ounce of yellow Wax to make a Consistence.

If any Hardness remains, the Plaister of Mucilages may be apply'd; or that which is made of the Gums, *Bdellium*, *Ammoniack*, and *Galbanum*, dissolv'd in Vinegar. But Care must be taken not to omit the Purgatives of Jalap to the quantity of a Dram in a Glass of White-wine; or of half an Ounce of Lozenges of *Diacarbium*, which are effectual in exhausting the Stock of Serosities, which nourish Oedematous Swellings.

Of Oedematous Tumours and Impostumes.

What are the Kinds of Tumours that partake of the Nature of an Oedema?

They are the *Phlyctæna* and *Emphysema*, the *Batrachos* or *Ranunculus*, the *Wen*, the *Talpa*, the *Bronchocele*, the *Ganglion*, the *Fungus*, the *Scurf*, the *Scrophula*, or *King's-Evil*, and all Sorts of *Dropfies* both general and particular.

What are Phlyctæna's?

They are *Pustules* or *Blisters* fill'd with a white and somewhat yellowish Humour.

What is an Emphysema?

It is a kind of flatuous Tumour, wherein Wind is contain'd, with a little slimy Phlegm.

What is a Batrachos or Ranunculus?

It is a Blister fill'd with slimy Water that arises under the Tongue near the String, and in French is call'd *Grenouillette*, or the little Frog; which is the same with its Greek and Latin Names.

What is a Wen?

It is a Tumour consisting of thick, tough, pituitous Matter, like Plaister, and is reckon'd among the *Encysted Swellings*.

What is a Talpa?

It is a soft and pretty large Tumour, which usually appears in the Head and Face, containing a white, thick, and pituitous Matter.

What is a Bronchocele?

It is a Tumour which riseth in the Throat, and distends it exceedingly; being compos'd of thick Phlegm mix'd with a little Blood, and is rank'd among the *Encysted Tumours*.

What

What is a Ganglion?

It is a very hard Tumour, void of Pain, and moveable, produc'd by thick Phlegm: This is always found upon some Nerve or Tendon.

What is a Fungus?

It is a spongy Tumour that grows upon Tendons bruised or weakened by some Hurt.

What is the Scurf?

It is a whitish and scaly Tumour rais'd in the Skin of the Head by a viscous and mix'd Phlegm, having its Root in the bottom of the Skin.

What is the Scrophula or Kings-Evil?

Scrophulae, or Strumae, commonly call'd the Kings-Evil, are Tumours that generally shew themselves in the Glandules of the Neck, and in all those Parts where there are any. They consist of a viscous, serous, and malignant Phlegm, the Source or Root whereof is suppos'd to be in the Glandules of the Mesentery. They are also of the Number of the Encysted Tumours.

What is the Dropsie?

It is a soft Tumour occasion'd by the settling of abundance of serous Matter in the Parts where it appears.

How many sorts of Dropsies are there?

There are three general Species, viz. the Ascites, Tympanites, and Leucophlegmatia.

What is an Ascites?

It is a kind of Dropsie that forms the Tumour or Swelling of the Abdomen or lower Belly, by a Mass of Water.

What is a Tympanites?

It

It is a kind of Dropsie, which in like manner causeth a Tumour or Swelling in the lower Belly, with this Difference, that a great deal of Wind is mix'd with the Water, which renders the Tumour transparent, and sounding as it were a Drum, whence this Disease hath taken its Name.

What is the Dropsie call'd Leucophlegmatia?

It is a Tumour; or, to speak more properly, a general Swelling or Bloating of all the other Parts of the Body, as well as of the lower Belly. It is produc'd by a viscus and mucilaginous sort of Phlegm; whence it happens, that the Print of the Fingers remains in those Places that have been prest.

What are the particular kinds of Dropsies?

They are those that are incident to different Parts of which they bear the Names; as the *Hydrocephalus*, which is the Dropsie of the Head: The *Exomphalus* of the Navel, and the *Hydrocele* of the *Scrotum*. There is also a Dropsie of the Breast, and of the Womb.

What are the Remedies proper for all these sorts of Tumours or Dropsies?

They are in general all those that are agreeable to the *Oedema*, which are variously us'd; as, Liniments, Fomentations, Cataplasms and Plaisters: Internal Medicines ought also to be much consider'd, as Diaphoreticks, Sudorificks, and Purgatives, when they are assisted by a regular Diet.

A Decoction of the Roots of Briony with Cinnamon and Liquorish provokes Urine very much, as well as a Decoction of Turnips and Carrots, and an Infusion of Sage in White-wine.

ARTICLE IV.

*Of a Schirrus, and its peculiar Remedies.**WHAT is a Schirrus?*

It is a hard unmoveable Tumour, almost altogether void of Pain, and of a livid dark Colour; which is form'd of a Melancholick Humour, frequently succeeding *Phlegmons* and *Oedema's* that have not been well dress'd with convenient Remedies.

How is a Schirrus cur'd?

By mollifying or dissolving it, and seldom by bringing it to Suppuration.

It may be mollify'd by the Application of a Cataplasme or Pultis, compos'd of the Leaves of Violet Plants, Mallows, Beets, Elder, Rue and Wormwood, with Camomile-Flowers, Horse-Dung, Cow-Dung, and White-Lillies. The whole Mass is to be boil'd together in Wine, afterward adding Honey and Hogs-Lard, to make a Cataplasme thereof with the Crum of white Bread.

It is dissolv'd with Plaisters compos'd of those of *Dyachylon*, Melilor, and Mucilages, to which is added *Oleum Lumbricorum*, and Flower of Brimstone. To render the Remedy more effectual, Oil of Tobacco may be also mix'd with it, and Gum *Ammoniack* dissolv'd in Vinegar.

Furthermore, these Topical or outward Medicines are to be accompany'd with others taken

ken inwardly, which serve to prepare the Humours for convenient Evacuations: Such are Crabs-Eyes, the Decoctions of *Sarsaparilla*, the Use of good Wine, and light Meats of easie Digestion.

Of Schirrous Tumours, and their Remedies.

What are the Tumours that partake of the Nature of a Schirrus?

They are the *Polypus*, *Carcinoma*, *Sarcoma*, *Natta* or *Ficus*, and *Cancer*.

What is a Polypus?

It is an Excrecence of fungous Flesh arising in the Nostrils: But *Hippocrates* confounds the *Carcinoma* and *Sarcoma* with the *Polypus*, of which he says they are only a *Species*.

What is the Natta or Ficus?

It is a Tumour or Excrecence of Flesh that appears in the Buttocks, Shoulders, Thighs, Face, and every where else, the various Figures of which cause it to be call'd by different Names. For one while it resembleth a Gooseberry, at another time a Mulberry, and at another time a Melon or Cherry. Sometimes also these Swellings are like Trees, Fishes, Birds, or other sorts of Animals, according to the ardent Desire that Women with Child have had for things that they could not obtain when they longed for them.

What are the Remedies proper for the Polypus, and other kinds of Excrecences of the like Nature?

The *Polypus* may be cur'd in the beginning, but it is to be fear'd, lest it degenerate into an incur-

curable Cancer, when it hath been neglected or ill drest.

Besides the general Remedies, which are letting Blood a little, and re-iterated Purgations, with an exact Regulation of Diet, there are also particular Medicaments which dry up and insensibly consume the Excrecence; as a Decoction of *Bistort*, *Plantain*, and *Pomegranate-Rinds* in Claret-Wine, which is to be snuffed up the Nose many times in a Day, and serves to soak the small Tents that are put therein, as also often to cool the Part, adding a little Allum and Honey.

The Patient must sometimes likewise keep in his Mouth a Sage-Leaf, sometimes a Piece of the Root of *Pellitory of Spain*; and at another time Tobacco, or some other thing of this Nature, which brings the *Saliva* into the Mouth. If the Tumour continues too long, and doth not yield to the above-mention'd Remedies, it is necessary to proceed to a Manual Operation, which is very often perform'd with good Success.

As for the *Natta's*, it is most expedient not to meddle with them at all; nevertheless these Marks which Infants bring along with them into the World, are frequently taken off by an Application of the After-Burdens, whilst they are as yet warm, as soon as their Mothers are deliver'd.

What is a Cancer?

It is a hard, painful and ulcerous Tumour, produc'd by an adust Humour, the Malignity whereof can scarce be suppress'd by any Remedies.

How

How many sorts of Cancers are there ?

There are two Kinds, viz. the Primitive and the Degenerate : The Primitive Cancer is that which comes of it self, and appears at first about the bigness of a Pea or Bean, which nevertheless doth not cease to cause an inward Pain, continual, and pricking by Intervals ; during this time it is call'd an *Occult Cancer* ; but when grown bigger, and open'd, it bears the Name of an *Ulcerated Cancer* ; which is so much the less capable of being cur'd or asswag'd, as it makes it self more conspicuous by its dreadful Symptoms, or concomitant Circumstances.

The Degenerate Cancer is that which succeeds an obstinate and ill-dress'd Tumour or Impostume, and which becomes an *Ulcerated Cancer*, without ever having been an *Occult* or *Latent* one at first.

What Remedies are requisite to be apply'd to a Latent Cancer ?

In regard that it cannot be known in this Condition without Difficulty, it is often neglected ; nevertheless it is a Matter of great Moment to prevent its Consequences, more especially by a good Diet and by general Remedies, which may gently rectifie the Intemperature of the Bowels : Afterwards the Baths may be prescrib'd, together with the Use of Whey, Asses-Milk, and Specificks in general, as Powders of Crabs-Eyes, Vipers, Adders and others. As for Topical Remedies, none are to be administred, except it be judg'd convenient to apply to the Tumour a piece of Lead rubb'd with Quicksilver ; all others serving only to make the Skin tender, and

apt to break. The Patient may also take for his Drink, Water of *Scorzonera* and *Harts-Horn* with the Flowers of *Buglos* or *Borage*, and *Liquorice*: Or else *Quicksilver Water* alone, boiling an Ounce of it in a Quart of Water every time, the *Quicksilver* always remaining at the bottom of the Vessel.

What are the Remedies for an Ulcerated Cancer?

Besides the general ones, that are the same with those of the blind Cancer, there are also Topical, which may take place here. The Powders of *Toads*, *Moles*, *Frogs*, and *Crabs* calcin'd, cleanse the Ulcers perfectly well. A Decoction of *Vipers* and *Crabs*, may serve to bath 'em, and some of it may be taken inwardly. Deterfives made of *Lime-Water*, or *Whey* clarify'd and boil'd with *Chervil* are very good; and, if you please, you may add *Camphire* or *Saccharum Saturni*.

If the Pains grows violent, recourse is to be had to *Laudanum*, one or two Grains whereof may be given in a little Conserve of *Roses*. When the Cancer is situated in the *Glandules*, or *Flesh*, the Extirpation of it may also be undertaken with good Success.

As for the manner of treating degenerate Cancers, respect must be always had to the kind of Tumour from whence it deriv'd its Original.

C H A P. IV.

Of Bastard or Encysted Tumours.

WHAT is an Encysted or Bastard Tumour or Impostume ?

It is that which is made of a settling of mix'd and corrupt Humours, the Matter whereof is contain'd in certain proper *Cystes*, or Membranous Bags.

What are the Kinds of these Tumours ?

They are the *Steatoma*, the *Atheroma*, the *Meliceris*, the Wen, the *Broncocele*, and the *Scrophula* or King's Evil.

How is the Difference between these Tumours discern'd.

The *Steatoma* is known by its Matter resembling Suet, as that of the *Atheroma* resembleth Pap; and that of the *Meliceris* is like Honey: These three Tumours cannot be well distinguish'd on the outside, in regard that they do not change the natural Colour of the Skin, which equally retains in all three the Print of the Fingers that press it: But the *Broncocele* is discover'd by the Place and Part which it possesseth; that is to say, the Throat; as also by its somewhat hard Consistence without the Alteration of the Skin. The *Scrophula*, or King's-Evil Swellings are known by their unequal Hardness, and their Situation in the Glandules, either in the Neck, Arm-pits, or elsewhere, without Alteration likewise of the Skin.

REME

R E M E D I E S.

What is the Method to be observ'd in curing these sorts of Tumours?

An Attempt is to be made to dissolve 'em, as in all the others; nevertheless the safest way is to bring 'em to Suppuration, and to extirpate the Cysts, which are apt to be fill'd again after the Dissipation of the Humour.

What are the Medicines proper to dissolve these Tumours?

They are all such as may be us'd for the Oedema and Schirrus; but the Specificks or particular Remedies are these:

Take Rosemary, Sage, Wormwood, Elder, great Celandine, Camomile. Melilot, St. John's-wort, and Tobacco; boil them in White-wine with Soot and *Mel Mercuriale*, adding thereto Cummin-Seeds beaten, and *Oleum Lumbricorum*, to make a Cataplasme, which is to be renew'd twice a Day. Afterward if the Tumour be not dispers'd, you may apply the following Plaister, which hath an admirable Effect.

Take an equal Portion of the *Emplastrum Diachylon* and *Devigo*, and four times as much Mercury and *Emplastrum Divinum*; let them be dissolv'd together; then mix Saffron and Oil of Tobacco enough to make a Plaister with the whole Mass, which may be spread upon thin Leather, and apply'd to the Tumour, taking it off only once every eighth Day, to cool it; let it be laid on again after having wash'd and bath'd the Part with warm Urine or Brine.

But it is to be always remembred that external Remedies take effect only imperfectly, unless they are assisted by Internal, such as in this case are reiterated Purgations, join'd with a regular Diet.

What are the Remedies proper to excite Suppuration?

To this purpose those may be us'd that serve in other kinds of Tumours: But as for the Extirpation of the *Cysts*, it is done by dividing the Tumour into four Parts, by procuring Suppuration, and by consuming the Bag by little and little. The *Bronchocele* alone will not admit this Extirpation by reason of the great Number of Nerves, Veins and Neighbouring Arteries amidst which the Tumour is settl'd.

CHAP. V.

Of Critical, Malignant, Pestilential and Venereal Tumours and Impostumes.

WHAT Difference is there between Critical, Malignant, Pestilential and Venereal Tumours?

It consists in these particular Circumstances, viz. that Critical Tumours or Impostumes are indifferently all such as are form'd at the End or Termination of Diseases, in whatsoever Place or Part they appear.

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Malignant Impostumes or Tumours are those that are obstinate, and do not easily yield to the most efficacious Remedies.

Pestilential Impostumes or Tumours are those that are accompany'd with a Fever, Swooning, Head-ach and Faintness: They usually arise in the time of a Plague or Pestilence, and are contagious.

Venereal Tumours or Impostumes are those that appear at the bottom of the Groin, and are the Product of an impure *Coitus*.

For this reason the Critical Impostume may be Malignant, Pestilential or Venereal; the Malignant Impostume may be neither Critical, nor Pestilential nor Venereal. But the Pestilential and Venereal Tumours are always Malignant.

What are the ordinary kinds of Critical Tumours or Impostumes?

They are the *Anthrax*, the Boil, the *Phlegmon*, and the *Parotides*, or Swellings in the Almonds of the Ears.

What are the kinds of malignant Tumours or Impostumes?

They are the *Cancer*, the *Scrophula* or King's Evil; and others of the like nature.

What are the kinds of Pestilential Tumours or Impostumes?

They are Carbuncles that break out every where; a sort of *Anthrax* which appears under the Arm-pits, and Bubo's in the Groin

What are the kinds of Venereal Tumours or Impostumes?

They

They are Borches, or *Bubo's* and *Cancers* that arise in the Yard; as also *Wens* and *Condylomas* in the Fundament.

What is the difference between a Pestilential and a Venereal Bubo?

They may be distinguish'd by their Situation, and respective Accidents; the Pestilential lying higher, and the Venereal lower, besides, a Fever, Sickness at the Heart, and an Universal Faintness or Weakness, are the ordinary concomitant Circumstances of the former; whereas the Venereal *Bubo* is always the Consequence of an impure *Coitus*, and is attended with no other Symptoms than those of common Tumours, viz. Pain, Heat, Shootings, or Prickings, &c.

As for the Remedies, they may be sought for among those that have been already prescrib'd for Tumours.

CHAP. VI.

Of the Scurvy.

THIS Disease is known by the Ulcers of the Mouth which are very stinking; as also by excessive Salivation, great Pains in the Head, Dizziness, *Epilepsies*, *Apoplexies*, and Palsies. The Face being of a pale red and dark Colour, is sometimes puffed up or bloated, inflam'd and beset with Pustules: The Teeth are loose and ake, the Gums are swell'd, itch, putrifie, exulcerate and are eaten with the Cancer; and the Jaw is almost unmoveable: The

Members are bow'd, and cannot be extended. The Patients become stupid and drowsy, so that they fetch their Breath with difficulty, are obnoxious to Palpitations of the Heart, Coughs, and fall into Swoons: The Ulcers sometimes are so malignant, that the Cheeks are entirely eaten up, and their Teeth seen: They are also much inclin'd to Vomiting, Looseness and Gripes; and their Bowels are swell'd: They have red and livid Pustules on their Belly and Privy-Parts, which sometimes break out into Ulcers; their whole Body becomes dry'd, &c.

This Disease may be easily cur'd in the beginning; but when it is grown inveterate, and invades the necessary Organs of Life, it becomes incurable; as well as when it is the Epidemical Disease of the Country, or the Persons afflicted with it, are old, or well advanc'd in Years.

In undertaking the Cure, it is requisite to begin with a good Diet, and to sweeten the Blood, let the Patient take the Broth of boil'd Fowls, eating Pullers and Eggs; in the Broth may also be put divers sorts of Antiscorbutick Herbs, viz. Cresses, Spinage, Parsley-Roots, Asparagus Smallage, *Scorzonera*, Scurvy-grass, &c. Let him eat nothing that is high season'd, nor acid or sharp; let him drink pure Claret, without any adulterate Mixture; let him use moderate Exercise and Rest: Lastly, let him keep his Mind sedate, and free from all manner of violent Passion.

The following Remedies taken inwardly, are very good for the Scurvy, viz. the Tincture of Flints from Ten Grains to Thirty; Diaphoretick

Antimony, from Six Grains to Thirty ; sweet
Sublimate, from Six Grains to Thirty ; *Mars Dia-*
phoreticus, from Ten Grains to Twenty ; *Crocus*
Martis Aperitivus, from Ten Grains to Two Scr-
uples ; prepar'd Coral, from Ten Grains to one
Dram ; Volatile Spirit of *Sal Ammoniack*, from
Six Drops to Twenty ; Water of Cresses, from
Fifteen Drops to one Dram ; Spirit of Scurvy-
grass, from Ten Drops to one Dram : Tincture
of Antimony, from Four Drops to Twenty ;
Oily Volatile *Sal Ammoniack*, from Four Grains
to Fifteen ; Spirit of *Guajacum*, from half a Dram
to a Dram and a half ; *Vitriolate Tartar*, from
Ten Grains to Thirty ; the Volatile Salt of *Tar-*
tar, Urine, Vipers, and Harts-Horn, of each
from Six Grains to Fifteen ; the Spirit of Gum
Ammoniack, from Eight Drops to Sixteen ; white
Mercury precipitate, from Four to Ten Grains ;
Mercurial Panacea from Six Grains to Two Scr-
uples. We shall shew the manner of compounding
them in our Treatise of *Venereal Diseases*.

It is also expedient to give Emollient and De-
terfive Clysters to the Patient at Night going to
Bed, his Body being always kept open with con-
venient Diet-drinks : Afterward let him take gen-
tle Sudorificks, such as are made of the Decocti-
ons of Fumitory, wild Cichory, Dandelion, Harts-
Tongue, Scabious, the lesser House-Leek, Ger-
mander, Borage, *Scorzonera*-Root, and Polypody,
with Flowers of Broom, Elder, and Marygold.

These are stronger for cold Constitutions, viz.
Decoctions of Scurvy-grass, *Lepidium*, Arsmart,
the Lesser Celandine, Wormwood, Little House-
Leek, *Trifolium fibrinum*, *Angelica*, Juniper-Ber-
ries, &c.

Convenient Decoctions to wash the Mouth may be made with Sage, Rosemary, Hyssop, Oak-Leaves, Scurvy-grass, Cresses, Tobacco, Roots of Bistort, Birth-wort, Tormentil, Flower-de-Luce, *Balaustia* or Pomegranate-Flowers, and Roses, &c.

To corroborate the Gums, Gargarisms are made of Antiscorbutick Plants; as of Spirit of Scurvy-Grass two Drams, one Scruple of Spirit of Vitriol, one Scruple of common Salt, four Ounces of Rose-water and Plantane-water. But if the Gums are putrify'd, they are to be rubb'd with Honey of Roses, and some Drops of Spirit of Salt.

To assuage the Pains of the Members, Bathings and Fomentations are to be us'd; and a Decoction of Saxifrage taken inwardly, with some Grains of *Laudanum* is good for that purpose.

To allay the Gripes, Clysters may be given with Whey, Sugar, Yolks of Eggs, Syrup of Poppies, and Oils of Earth-Worms, Scurvy-Grass, Camomile, &c.

Against the Scorbutick Dropsie, take the Essence of *Trifolium Fibrinum* and Elicampane, from twenty four Drops to thirty, and continue the Use thereof.

Milk taken inwardly hinders Vomiting; and a Broth or Gelly of Crabs sweetens the Blood. The Looseness may be stop't with the Essence of Wormwood, and Spirit of *Mastick*; as also the Fever, with Febrifuges and Antiscorbuticks.

The Spots may be fomented with Decoctions of Aromatick and Antiscorbutick Herbs and Nitre. For the Ulcers of the Legs, pulverize an equal Quantity of *Saccharum Saturni*, *Crocus Martis* Myrrh, and *Mercurius Dulcis*, and arm the Pledgits with these that are to be apply'd to the Sores.

To mollifie the sharpness of acid Humours, this is a good Remedy : Take half an Ounce of Spirit of Scurvy-grass, two Drams of Tartariz'd Spirit of *Ammoniack*, a Dram of the Tincture of Worms. Give thrice a Day fifteen or twenty Drops of this Liquor in a Decoction of Fir Tops.

Against the Tubercles, Take two Handfuls of the Flowers of Camomile and Elder, three Drams of Briony-Root, and a Handful of White-bread Crum ; boil the whole Composition in Milk, and make Cataplasms thereof.

To mitigate the Pains in the Head, Take twenty or thirty five Drops of the Tincture of Amber, in Antiscorbutick Spirits or Waters.

The Difficulty of Respiration may be remov'd by a Medicinal Composition made of two Drams of an Antiscorbutick Water, two Drams of the Essence of Elicampagne, and half a Dram of the Spirit of Gum *Ammoniack* ; Take three or four Spoonfuls thereof several times in a Day.

To prevent the putrefaction of the Gums, take one Dram of the Tincture of Gum *Lacca*, three Drams of the Spirit of Scurvy-grass, with fifteen or twenty Drops of Oil of Tartar made *per Deliquium*, and rub the Gums with this Composition many times in a Day. Brandy in which Camphire is infus'd, or Spirit of Wine, is likewise a most excellent Remedy ; as also all Lotions

or Washes made with the Waters or Decoctions of Antiscorbutick Plants.

For Leanness, Goats-Milk with the Spirit of Scurvy-grass may be us'd, and other Waters drawn from Antiscorbutick Plants. The Apozemes or Decoctions of Endive, Cichory, Sorrel, *Becaburga*, and Snail Water, are in like manner very good for the same purpose.

Ointment of *Styrax* is frequently us'd in the *Hôtel Dieu* at *Paris*, for Spots and Hardnesses that arise in the Legs.

A
TREATISE
OF

Wounds, Ulcers and Sutures.

CHAP. I.

Of Sutures.

SUTURES or Stitches are made only in recent, and as yet bleeding Wounds, when they cannot be reunited by Bandage, as are the Transverse; provided there be no Contusion, nor loss of Substance, nor great Hemorrhages, as also that the Wounds were not made by the biting of venomous Beasts, that there be no violent Inflammations, and that the Bones are not laid open; because then generally 'tis necessary to cause 'em to be exfoliated; neither is this Operation to be perform'd in the Breast, by reason of its Motion.

The Instruments proper for the making of Stitches, are streight and crooked Needles,

with waxed Thread ; and these Sutures are of four sorts, *viz.* first, the *Intermittent Stitch* for transverse Wounds ; the second for the Hair-Lip ; the third, commonly call'd the *Dry Stitch*, for superficial Wounds, and the fourth, term'd the *Glovers Stitch*.

The Intermittent Stitch is that which is made at certain separated Points, according to the following manner : After having taken away all extraneous Bodies out of the Wound, let a Servant draw together its sides or Lips ; and let a Needle with waxed Thread be pass'd through the middle, from the outside to the inside, several Points being made proportionable to its length. It is requisite to pierce a good way beyond the edge of the Wound, and to penetrate to the Bottom, lest any Blood should remain in the Space, that might hinder the uniting.

If the Wound hath Corners, the Surgeon begins to sew there ; and before the Knot is made, causeth the Lips of the Wound to be drawn exactly close one to another : The Knots must be begun with that in the middle, and a single one is first made on the side opposite to the running of the Matter ; laying upon this Knot (if it be thought convenient) a small Compress of Rags waxed, on which is ty'd a slip-Knot, to the end that it may be united if any bad Accident should happen. If a Plaister be apply'd to the Wound after the Stitching, a small Compress is to be laid over the Knots, to prevent their sticking to the Plaister. In Case any Inflammation happens in the Wound, the Knots may be loosned and ty'd again when the Symptoms cease : But

if the Inflammation continue, the Threads are to be cut by passing a Probe underneath: When the Wound is clos'd, the Threads are cut in like manner with a Probe; and in drawing them out, a Finger must be laid near the Knot, lest the Wound should open again.

To make the second sort of Stitch for the Hair-Lip, a small strait Needle is pass'd into the sides of the Wound, and the Thread is twisted round the Needle, by crossing it above at every stitch.

To form the *Dry Stitch* in very superficial Wounds, a piece of new Linen-Cloth is to be taken, wherein are made Digitations, or many Corners; the Selvedge or Hem ought to be on the side of these Corners or Digitations; and a small Thread-Lace is ty'd to every one of them. Afterward this Cloth is dipt in strong Glue, and apply'd about a Finger's breadth from the Edges of the Wound; so that a piece thereof being stuck on each side, the Laces may be ty'd together, to cause the Lips of the Wound to meet.

To make the *Glovers Stitch*, the Operator having drawn together the Lips of the Wound, holds them between two Fingers, passeth a Needle underneath them, and sews them upward all along, after the manner of the *Glovers*.

C H A P.

C H A P. II.

*Of Wounds in General.***WHAT** is a Wound?

A Wound is a recent, violent, and bloody Rupture or Solution of the natural Union of the soft Parts, made by a pricking, cutting or bruising Instrument.

What ought to be observ'd before all things in the curing of Wounds?

It is requisite to take notice of their Differences, as well as of the Instruments with which they were made; to the end that Consequences may be drawn from thence for the Application of proper Remedies.

From whence ariseth the Difference of Wounds, and which be they?

They are taken either from their Figure or Situation. With regard to their Figure, they are call'd Long, Broad or Wide, Triangular, Great, Little, Superficial, or Deep; and with respect to their Situation, they are term'd Simple, Complicated, Dangerous, or Mortal.

What is a Simple and a Complicated Wound?

A Simple Wound is that which only opens the Flesh, and hath no other concomitant Circumstances; but a Complicated Wound, on the contrary, is that which is attended with grievous Symptoms, as Hæmorrhages, Fractures of Bones, Dislocation, Lameness, and others of the like Nature.

What

What is a dangerous and mortal Wound?

A dangerous Wound is that which is complicated, the Accidents whereof are dreadful: As when an Artery is open'd or prick'd, when a Nerve or Tendon is cut, or when the Wound is near a Joynt, and accompany'd with a Dislocation or Fracture. A mortal Wound is that which must be inevitably follow'd by Death: as is that which is situated deep in a principal Part necessary for the Preservation of Life.

What are the Parts wherein Wounds are mortal?

They are the Brain, the Heart, the Lungs, the Oesophagus or Gullet, the Diaphragm, the Liver, the Stomach, the Spleen, the small Guts, the Bladder; the Womb, and generally all the great Vessels.

Wherein doth the Cure of Wounds consist?

In helping Nature readily to procure the re-uniting of the Parts that have been divided, after having taken away or asswag'd every thing that might prove an Obstacle.

What are the Things that hinder the speedy re-union of the Parts?

They are extraneous Bodies found therein, as Bullets, Flocks, and pieces of Wood or Stone, &c. As also sometimes the Accidents which attend them; as an *Hæmorrhage* or Flux of Blood, Inflammation, *Esthiomenus* or Mortification, *Hypersarcofis*, or an Excrecence of Flesh, Dislocation, the Fracture of a Bone, the Splinter of a Bone, and sometimes a *noxious* Air.

REME-

R E M E D I E S.

What are the Remedies proper for stopping a Hæmorrhage or Flux of Blood ?

The common Remedy is a kind of Cataplasma, made up with the Powder of Aloes, Dragon's Blood, Bole Armony, and Whites of Eggs, which are mix'd together and laid upon the Wound : but the following is an excellent one.

Take two Ounces of Vinegar, a Dram of Colcothar, two Drams of *Crocus Martis Astringens*; beat the whole together, steeping *Muscus Quercinus* therein ; then throw upon it the Powder of Mushrooms, or of *Crepitus Lupi* : Apply this Remedy, and you'll soon stop the Hæmorrhage, taking care nevertheless to bind the Part well, otherwise the Astringents do not readily take effect.

To this purpose you may also make use of Cobwebs, Mill-Dust, and the Powder of Worm-eaten Oak ; or else take Oven-Soot mix'd with the Juice of the Dung of an Ass or Ox, adding only thereto the White of an Egg.

Besides these Remedies, there are also actual and potential Cauteries, or simple Ligatures, which are infallible. Indeed the actual Cautery is not always sure ; because when the Escar made by the Fire falls off, the Hæmorrhage breaks out again as before : But the potential Cautery is almost always successful ; such as the following.

Take about an equal Quantity of Vitriol and Powder of Mushrooms ; apply them upon a little Lint to the Place where the Blood issueth

forth

forth, and this will stop it immediately: But care must be taken to avoid touching a Nerve or Tendon: By reason that the Vitriol is apt to excite Convulsions.

How is the Inflammation and Mortification of a Wound suppress'd?

If the Inflammation proceeds from the Presence of an Extraneous Body, it must be taken away as soon as possible with a pair of Forceps, and if from the Quantity of Pus or corrupt Matter, it must be let out. But in case the Inflammation ariseth from extreme Pains, they are to be asswaged with Cataplasms or Pultisses and Anodyne Liniments, such as those already prescrib'd in the Cure of the *Phlegmon*: Or else the Part may be bath'd with Camphorated Spirit of Wine, mixt with as much Water, *Saccharum Saturni* infus'd in Lime-Water, performs the same Effect, and the Water of Crabs alone is admirable in its Operation.

Against the *Esthiomenus* or Mortification, make use of Wine boil'd with Wormwood, St. John's-wort, Rosemary and Aloes; or else take the Tincture of Aloes and Myrrh, or Spirit of Wine alone impregnated with Camphire and Saffron.

What is to be done in Case a Convulsion happens, by reason of a wounded Nerve or Tendon?

If the Convulsion be caus'd by the Presence of an Extraneous Body that bruise the Part it must be taken away; and if from the wounding of a Nerve, pour into the Wound some Drops of the Oil of Lavender distill'd, which in that Case is of singular Use: This Oil may be also taken inwardly in an appropriated Liqueur, such as a
De-

Decoction of Wormwood and the tops of the lesser Centaury. Balsam of *Peru* used in the same manner is an excellent Remedy, and the Oils of Worms, Snails, St. *John's-wort* and Turpentine are frequently applied with good Success.

If the Convulsion proceeds from the biting of some venomous Creature, Cupping-Glasses or Leeches are to be immediately applied, or a Cataplasm of *Venice Treacle* with the Spirit of Wine, or the Actual Cantery, leaving to the Physicians Care the Prescription of other vulnerary Remedies proper to be taken inwardly.

What is to be done to draw the Extraneous Bodies out of a Wound?

When they cannot be taken away with the Fingers or Forceps, the Patient must be set in the same Station or Posture wherein he was when he receiv'd the Wound, in order to get some farther Light to discover them; or else such Plaisters may be used as are endued with an attractive Quality: particularly this:

Take an Ounce of *Venice-Treacle*, half a Dram of Gum *Ammoniack*, one Dram of *Bdellium*, and two Drams of Boars Grease, adding a Quarter of a Pound of Wax to make them up into the Form of a Plaister. It is reported that Hares Grease alone hath the same Effect, and that it goes for a Secret among the Surgeons, but you may, if you please, mix it with Ointment of Betony. However it hath been observed that Leaden Bullets may sometimes remain in a Man's Body during his whole Life-time, without doing any harm.

How are Excrescences to be taken away?

They may be consum'd with Powder of *Allum*,
Unguentum Aegyptiacum, or *Lapis Infernalis*.

After having remov'd every thing that hinders
the re-uniting the Lips of the Wound, what is to be
done to attain thereto?

The Re-Union in Wounds is properly the
Work of Nature; but it may be promoted by put-
ting into them a little Balsam of *Peru*, and draw-
ing together their Lips with the Fingers: After-
wards the Lips must be kept clos'd with a Ban-
dage, a Glutinous Plaister on the dry Stitch, provi-
ded the Wound be only superficial, hindring the
Air from penetrating into it. For want of Bal-
sam of *Peru*, an excellent one may be made with
the Flowers here specified.

Take the Flowers of Henbane, *S. John's-wort*,
and Comfry, and let them be digested in the Sun
during the whole Summer-season in the Oil of
Hempseed, which Oil, the longer it is kept proves
so much the better, if it be set forth in the Sun e-
very Summer, the Vessel that contains it being
well stopr. There is also the *Balsam of Balsams*,
or the Balsam of *Paracelsus*, call'd *Samech*.

To avoid the exposing of Wounds to the Air,
it is requisite to cover them over the Dressings
with some sort of Plaister, which is usually term-
ed the *Surgeon's Plaister*, such is that which is
effectual dissolving, corroborating and allaying
Pain or Inflammation.

Take the Mucilages of the Roots of great
Comfry and *Fœnugreek*, half a Pound of *Ceruse*
or white Lead, two Drams of *Crude Opium*, one
Dram of Camphire, as much of Saffron, two
Drams of *Sandarack*, one of the Oil of Bays,
one

one half Pound of Rosin, and as much of Turpentine and Wax. Boil all these Ingredients together in a sufficient Quantity of *Linseed Oil*, and make a Plaister according to Art.

In great Wounds it is expedient to lay over the Dressings a *Cataplasm* or *Pultis*, such as this:

Take the Leaves and Flowers of *Camomile*, and *Melilot*, the Tops of *Wormwood*, common *Mallows*, and *Marsh-Mallows*, with the Seeds of *Cummin* and *Linseed* powder'd: Then boil the whole Composition in Wine, and add thereto *Barley-Meal*, to give it a due Consistence. If there be any Cause to fear a Gangrene, you may also intermix *Saffron*, *Myrrh*, and *Aloes* with Spirit of Wine.

Is it necessary to put Tents into all Wounds, and to make use of Digestives and Suppuratives?

No, It is sufficient to procure the re-uniting of the Parts simply by the means of Balsams in small Wounds; because they ought not to be brought to Suppuration: So that Digestives and Suppuratives are only necessary in great Wounds, and those that are accompany'd with Contusion, avoiding the ill Custom of some Country-Surgeons, that stuff up their Wounds too much with Tents and Pledgits, whereas they might well be content with simple Pledgits or flat Dossils dip'd in the ordinary Digestive of Turpentine and the Yolks of Eggs with a little Brandy, or else with the Tincture of Myrrh and Aloes.

Suppuration may also be promoted by mundifying and quickning the Wound, especially if the Pledgits be steep'd in the following Composition.

Take

Take half an Ounce of Aloes and Myrrh powder'd, two Drams of *Sal Saturni*, Twenty Grains of *Sal Ammoniack*, the same Quantity of beaten Cloves, a Dram of Queen of Hungary's Water, and half an Ounce of *Unguentum Basilicon*, and let the whole Mass be mingled together.

In fine, the whole Mystery consists in well cleansing the Wounds with a Linen-Cloth, or with the Injections of the Tinctures of Myrrh and Aloes; or with simple Decoctions of Wormwood, *Sordium* or Water-Germander, Bugle, Sanicle, and Horehound in White-wine; as also by prescribing the Vulnerary Decoctions of Powder of Crabs-Eyes, and *Saccharum Saturni*, to be taken inwardly, to consume the Acid Humours, which are a very great Obstacle to the speedy Cure of Wounds.

What are the vulnerary Plants, the Decoction of which is to be taken inwardly?

They are *Alchymilla* or Ladies Mantle, Ground-ivy, *Veronica* or *Fluellin*, *St. John's-wort*, Wormwood, Centaury, Bugle, Sanicle, Chervil, and others. The Decoction of Crabs may also be prescrib'd, which is an excellent Remedy, and may serve instead of a Vulnerary Potion.

Sometimes Sutures or Stitches contribute very much to the re-uniting of the Lips of Wounds, when they cannot be join'd by Bandage.

C H A P. III.

Of particular Wounds of the Head.

WHAT ought first to be consider'd in a Wound of the Head?

Two things, that is to say, the Wound it self, and the Instrument with which it was made; for by the Consideration of the Wound, we may know whether it be superficial or deep; and by that of the Instrument, we are enabled to make a truer Judgment concerning the Nature of the same Wound.

What is a superficial, and what is a deep Wound in the Head?

That is call'd a *Superficial Wound* in the Head, which lies only in the Skin; and that a *Deep* one which reacheth to the *Pericranium*, Skull, or Substance of the Brain.

What is to be apply'd to a Superficial Wound?

It is cur'd with a little of the *Queen of Hungary Water*; or else with a little *Balsam*, laying upon it the *Surgeons Plaister*, or that of *Betony*. But if the Wound or Rent be somewhat large, it must be clos'd with a *Stitch*.

What is to be done to a deep Wound?

If it be only in the *Pericranium*, the Wound must be kept open, waiting for *Suppuration*; but if it enter the Skull, an Enquiry is to be made, whether there be a simple *Contusion*, or a *Fracture* also. In a *Contusion* it is necessary to wait for the *Suppuration*, and the Separation of the *Splinter*,

Splinter, and to keep the Wound open ; as in a Fracture, to examine whether it be in the first Table only, or in both. It is known to be only in the first, by the Application of an Instrument, and of Ink ; as also in regard that there are no ill Symptoms : But a Fracture in both Tables shews it self by proper Signs ; that it may be found out by making a Crucial Incision in the Flesh, to discover the Fissure.

What are the Signs of a Fracture of both Tables of the Skull, and of the Effusion of Blood upon the Membranes of the Brain ?

They are the Loss of the Understanding at the very Moment of receiving the Wound : An Hæmorrhage or Flux of Blood through the Nose, Mouth or Ears ; Dosing and Heaviness of the Head, and more especially Vomiting of Choler ; from whence may be inferr'd the necessity of making use of the Trepan.

What Consequence may be drawn from the Knowledge of the Instrument with which the Wound was made ?

It is according to the Quality of this Instrument ; as it is proper to cut, prick, or bruise ; if it be cutting, the Wound is more Superficial, and not subject to a great Suppuration : If it be pricking, the Wound is deeper, but of small Moment : If it be a battering or bruising Instrument, the Wound is accompanied with Contusion, producing a great Suppuration, besides the Concussion and Commotion of the Part, which must necessarily follow, and often cause very dangerous Symptoms.

Inferences may be made also from the Disposition of the wounded Person ; for a strong robust Man

Man may better bear the Stroke than a weak one; and even Anger encreases the Violence, so that all such Circumstances are not to be despis'd, in regard that they give occasion to good Conjectures.

What particular Circumstance is there to be observ'd in undertaking the Cure of Wounds in the Face?

It is, that a more nice Circumspection is required here than elsewhere, in abstaining from Incisions, as well as in making choice of proper Medicines, which must be free from noisome Smells: And it is in this Part chiefly that Balsams are to be us'd, avoiding Suppuration to prevent Scars and other Deformities.

C H A P. IV.

Of the particular Wounds of the Breast.

WHAT is to be observ'd in Wounds of the Breast?

Two Things, *viz.* whether they penetrate into the Cavity of the *Thorax* or not, which may be discover'd by the Probe, and by a Wax-Candle lighted and apply'd to the Entrance of the Wound, obliging the Patient to return to the same Posture wherein he receiv'd the Hurt, as also to keep his Nose and Mouth shut: For then the Flame may be perceiv'd to be wavering, the Orifice of the Opening being full of Bubbles: A Judgment may be also made from the running out of the Blood.

What

What is to be done when it is certainly known that the Wound penetrates into the Cavity of the Breast?

It is necessary to examine what Part may be hurt, by considering the situation of the Wound, and its Symptoms: If the Lungs are pierc'd, a spiring of frothy Vermilion colour'd Blood ensues, with difficulty of Respiration, and a Cough: If any of the great Vessels are open'd, the wounded Person feels a weight at the bottom of his Breast, is seiz'd with cold Sweats, being scarce able to fetch his Breath, and vomits Blood, some Portion whereof issueth out of the Wound. If the Diaphragm or Midriff be cut in its Tendinous Part, he is suddenly hurry'd into Convulsions: And if the Heart be wounded either in its Basis or Ventricle, he falls into a Swoon and dies instantaneously.

But if the Probe doth not enter, and none of the abovemention'd Symptoms appear, it may be taken for granted, that the Wound is of no great consequence.

What is to be done when the Wound penetrates into the Chest, yet none of the Parts are hurt, only there is an Effusion of Blood over the Diaphragm?

It is necessary to make an Empyema, for otherwise the extravasated Blood in corrupting, would inevitably cause an Inflammation, Gangrene, and kill the Patient.

What is an Empyema?

It is an Operation whereby any sorts of Matter are discharg'd with which the Diaphragm is loaded, by making a Perforation or Opening in the Breast.

C H A P. V.

Of the particular Wounds of the lower Belly.

WHAT is to be done to know the Quality of a Wound made in the lower Belly?

It is requisite to make use of the Probe, to observe the situation of the Wound, and to take notice of all the Symptoms: For by the help of the Probe, one may discover whether it hath penetrated into the Cavity or not, after having enjoyn'd the Patient to betake himself to the same Posture wherein he was when he first receiv'd the Wound: By its situation, a Conjecture may be made that such a particular Part may be hurt, and by a due Examination of the Symptoms, one may attain to an exact Knowledge. As for Example: It is known that one of the thick Guts is open'd, when the Hurt is found in the *Hypogastrium*, and the Excrements are voided at the Wound; As it is certain that one of the thin Guts is pierc'd, when the Wound appears in the Navel, and the Chyle issueth forth from thence: And so of the others.

What Method ought to be observ'd in curing Wounds of the lower Belly?

It is expedient at first to prevent letting in the Air, and to dilate the Wound, in order to sew up the perforated Gut, and afterward to re-

restore it to its Place ; as also to tie the Caul, which hangs out of the Orifice, and to cut it off, lest in putrifying it should corrupt the Neighbouring Parts. Then those Parts may be bath'd with Lees of Wine, wherein have been boil'd the Flowers of Camomile and Roses with Wormwood : The Powders of Aloes, Myrrh and Frankincense may be also sprinkled on them ; and the Wound must be sew'd up again to dress it on the Outside, the Patient in the mean time being restrain'd to a regular Diet. But Clysters must be forboren on these Occasions, especially when one of the thick Guts is wounded, making use rather of a Suppository or laxative Diet-Drinks, to avoid Dilatation and Straining.

CHAP. VI.

Of Wounds made by Guns or Fire-Arms.

IN these Wounds there is always Contusion, Laceration with loss of Substance, and often the Fracture and shattering of a Bone. They are red, black, livid, and inflam'd, not being usually accompany'd with an Hæmorrhage : They are generally round, and straiter at their Entrance than at their Bottom ; at least, if they were not made with Cross-bar Shot, or Quarter-pieces.

Of the Prognostick of Wounds by Gun-shot.

When these Wounds penetrate into the Substance of the Brain, or Spinal Marrow, or into the Heart, *Pericardium*, great Vessels, and other noble Parts, Death always inevitably follows, and often happens at the very Instant. But one may undertake the Cure of those that are superficial, and which are made in the Neck, Shoulders, Arms, and all other Parts of the Body.

Of the Cure of Wounds by Gun-shot.

For the better curing of these sorts of Wounds, it is requisite to be inform'd of the Quality of the Fire-Arms by which the Wounds were made, in regard that a Musquet is more dangerous than a Pistol, and a Cannon much more than a Musquet: as also to examine their situation and concomitant Accidents: For by how much the more complicated they are, so much the greater is the Danger. Then the Patient must be set (as near as can be) in the very same Situation and Posture wherein he remain'd when the Wound was receiv'd, in order to discover the direct Passage of the Wound by the Help of the Probe, with which a search is to be made, whether a Bullet or any other extraneous Bodies, as Wood, Flocks, Linen, or Stuff as yet stick in the Wound: So that Endeavours may be us'd to take them out through the same Hole where they are entred, Care being more especially had to avoid making Dilacerations.

lacerations in drawing them out: But if the Operator hath endeavour'd to no purpose to remove these extraneous Bodies, let him make a counter-opening in the opposite Part, where he shall perceive any Hardness, nevertheless without touching the Vessels: Thus the Incision being made, he may readily draw them out with his Fingers, or some other Instrument.

If a Bullet is lodg'd so far in a Bone that it can't be taken away without breaking the same Bone, it is more expedient to let it lie there: But if the Leg or Arm-bones are very much split or shatter'd, then the Amputation of them becomes absolutely necessary. The Pain and Inflammation of the Part may be asswag'd by letting Blood, topical Anodynes, cooling Clysters and Purgations: But in case much Blood hath been already spilt, Phlebotomy must be omitted. The Clysters may be made with Decoctions of *Mercury*, *Mallows*, *Beets*, a Handful of *Barley* and *Honey of Roses*.

Some Surgeons are of opinion that the Patient ought to be purg'd every other Day, and even on the very same Day that he receiv'd the Wound, if his Strength will permit: However very gentle Purges are to be us'd upon this Occasion, such as *Cassia*, *Manna*, *Tamarins*, *Syrup of Violets*, and that of white *Roses*.

In the mean while Anodynes may be us'd to mitigate the Pain; as Cataplasms, or Polteffes made with the Crum of white Bread, Milk, Saffron, the Yolk of an Egg, and Oil of *Roses* apply'd hot; which last Ingredient is of it self a very good Anodyne. But to asswage great Inflammations, Oil of *Roses*, the White of

an Egg and Vinegar beaten all together, may be laid on the neighbouring Parts.

At first it is necessary to apply spirituous Medicines to the Wound, and Pledgits steep'd in Spirit of Wine camphorated, are admirable for that purpose ; but if there be a Flux of Blood, styptick Waters, or other astringent Remedies may be used, still remembring that all these Medicaments must be apply'd hot.

To promote the Suppuration of these contused Wounds, a Digestive may be made of *Oleum Rosatum*, the Yolk of an Egg and *Venice Turpentine*.

If the Wound be in the Nerves, Tendons, or other Nervous Parts, it is requisite to use spirituous and drying Medicines, never applying any Ointments, which will not fail to cause Putrifaction in those Parts : But a Cataplasm may be made with Barley Meal, *Orobis*, Lupins and Lentils boil'd in Claret, adding some Oil of *St. John's-wort*.

The Balsam of *Peru*, Oil of Turpentine distilled, Oil of Wax, distill'd Oil of Lavender, *Oleum Philosophorum*, Oil of Bays distill'd, Balsam of *St. John's-wort*, Spirit of Wine and Gum *Elemi*, are excellent Medicaments for the Nerves : Or else,

Take four Ounces of *Unguentum Althaeae* with a Dram and a half of Chymical Oil of Bays ; mingle the whole Composition, and apply it : Or else,

Take an Ounce of distill'd Oil of Turpentine, a Dram of Spirit of Wine, and half an Ounce of Camphire ; let all be mix'd and drop'd into the Wound : Or else,

Take

Take a Scruple of *Euphorbium*, half an Ounce of *Colophonia*, and a little Wax; let 'em be mingl'd together, and apply'd very hot to the Nervous Parts.

If the Wounds are deep, Injections may be made with this Vulnerary Water, which is very good for all sorts of Contusions, as also for the Gangrene and Ulcers.

Take the lesser Sage, the greater Comfrey, and Mugwort, of each Four Handfuls; Plantane, Tobacco, Meadowsweet, Betony, Agrimony, Vervein, *St. John's-wort*, and Wormwood, of each Three Handfuls; Fennel, Pilewort, Bugle, Sanicle, Mouse-Ear, the lesser Dasse, the lesser Centaury, and All-heal, of each Three Handfuls; Three Ounces of round Birth-wort, and Two Ounces of long: Let the whole Composition be digested during thirty Hours in Two Gallons of good White-wine, and afterwards distill'd in *Balneo Mariae*, till one third part be consumed.

If a Gangrene happens in the Part, Spirit of Mother-wort may be apply'd to it, which is made with two Drams of Mastich, Myrrh, *Olibanum*, and Amber, and a Quart of rectify'd Wine, the whole being distill'd.

This Fomentation may be apply'd very hot to very good purpose, *viz.* an equal Quantity of Camphorated-Wine and Lime-water, with three Drams of Camphire.

This is also an excellent Cataplasm: Take a Pint of Lye, and as much Spirit of Wine, half a Handful of Rue, Sage, *Scordium*, and Wormwood, a Dram of each of the Roots of both sorts of Birth-wort, and two Drams of

Sal Ammoniack. Let the whole Composition be boil'd till a third part be consum'd; adding half a Dram of Myrrh and Aloes, and a little Brandy:

Of a Burn made by Gunpowder.

If the Burn be recent, and the Skin not ulcerated, Spirit of Wine or Brandy is to be immediately apply'd; or else an Ointment may be made with Oil of Olives, or bitter Almonds, Salt, the Juice of Onions, and Verjuice.

If the Skin be ulcerated, and little Bladders or Pustules arise, an Ointment may be compounded with the second Bark of Elder boil'd in Oil of Olives. After it hath been strained, add two parts of Ceruss or white Lead, and one of burnt Lead, with as much Litharge, stirr'd about in a Leaden Mortar, as will make a Liniment. But it is not convenient to take out the Grains of Powder that remain in the Skin, because they are apt to break, and to be more confounded or spread abroad; so that they must be left to come forth in the Suppuration.

When the Wound is superficial, and the Skin as yet whole, pounded Onions with common Honey are an excellent Remedy; but if the Skin be torn, it is not to be us'd, by reason that the Pain would be too great; in which case Oil of Tartar *per Deliquium* hath a very good Effect.

If the Burn be accompany'd with a Fever, it may be allay'd with fixt Nitre, Nitre prepar'd with Antimony, and Gunpowder taken in-

inwardly, which are very effectual in their Operation. Crabs Eyes prepar'd, and even some of them unprepar'd, are in like manner admirable Remedies.

As for external Medicaments, when the Burn is only superficial, take Onions and unslack'd Lime, quench'd in a Decoction of Rapes, and apply this Liquor very hot, with double Compresses dipt therein. Or else take what Quantity you please of quick Lime well wash'd, and beat it in a Leaden Mortar, with May Butter without Salt, to make an Ointment, which may be laid altogether liquid upon the affected Part: Or else,

Take as much quick Lime as you can get up between your Fingers at two several times; Milk-Cream and clarify'd Honey, of each about half the like Quantity; let the whole be intermix'd to the Consistence of an Ointment, and apply'd: It is an excellent Remedy. The following one is incomparable:

Take unslack'd Lime, and put it into common Water, so as the Water may rise four or five Fingers breadth above it. After the Effervescence pour in Oil of Roses; whereupon the whole Mass will be coagulated in form of Butter, and may be apply'd.

A good Lotion may be prepared with the Juice of Garlick and Onions, in recent Burns; or make use of this Ointment. Take an Ounce and an half of raw Onions, Salt, and Venice Soap, of each half an Ounce; mingle the whole Composition in a Mortar, pouring upon it a sufficient quantity of Oil of Roses: Or else,

Diffolve *Minium* or Litharge in Vinegar, filtrate this Liquor, and add thereto a Quantity of Rape-Oil newly drawn off, sufficient to give it the Consistence of a liquid Liniment; then stir it about in a Leaden Mortar till it become of a grey Colour, and keep it for use as an excellent Liniment: Or else,

Pound Crey-Fishes or Crabs alive in a Mortar to get their Blood, and foment the Part with it hot; it is a good Remedy: Otherwise intermix the pounded Crabs with May-butter without Salt, and let them be boil'd up together, and scumm'd, till a red Ointment be made, which may be drawn off, and strain'd for use. And indeed, all Medicinal Compositions wherein Crabs are an Ingredient, are true Specificks against Burns made by Gunpowder.

The Mucilages of the Seeds of *Psyllium*, or rather those of Quince-Seeds prepar'd with Frogs-Sperm, and a little *Saccharum Saturni*, spread with a Feather upon the affected Part, hath a wonderful Operation in Burns.

A Medicament compounded with one third Part of the Oil of Olives, and two of the Whites of Eggs well beaten and mix'd together, is a very simple and singular Remedy. Otherwise take half an Ounce of Linseed Oil infus'd in Rose-water, with four Yolks of Eggs; beat them together, and let the whole be apply'd to the burnt Part.

If the Burn be very violent, and hath many Pustules, *Emmellerus* is of Opinion that they ought to be open'd, and that an Ointment should be apply'd, which is made of Hens-Dung

Dung boil'd in fresh Butter : Other-
wise,

Take a handful of fresh Sage-Leaves, two handfuls of Plantane, six Ounces of fresh Butter without Salt, three Ounces of Pullet's Dung newly voided, and the whitest that can be found ; then fry the whole Composition for a quarter of an Hour ; squeeze it out, and keep it for use : Otherwise,

Take two Ounces of sweet Apples roasted under Embers, Barley-Meal, and Fenugreek, of each half an Ounce, and half a Scruple of Saffron ; let the whole Mass be mingled to make a Liniment or soft Cataplasm, which may serve to assuage Pain, and mollifie the Skin.

If the Wound be yet larger, and hath a Scab, open all the Pustules, and endeavour the two first Days to cause the Escar to fall off by the Application of a Liniment made of the Mucilages of Quince-Seeds steep'd in Frogs-Sperm, with fresh Butter, the Oil of White Lilies, and the Yolk of an Egg : Otherwise,

Make a Liniment with fresh Butter well beaten in a leaden Mortar, with a Decoction of Mal-lows, which being spread upon hot Colewort-Leaves, and apply'd to the Escar, will hasten its Separation.

But if the Escar be too hard and obstinate, it is requisite to proceed to Incisions to make way for the *Sanies*, lest a deep and putrid Ulcer should be engender'd underneath. As soon as the Humour is evacuated, the above-mention'd Emollient Medicines may be us'd, till the Separation ; then the Ulcer may be consolidated with

Digestives and Mundificatives; such as the Ointment of Quick Lime with Oil of Roses, and the Yolks of Eggs. The white camphorated Ointments, and that of Alabaster, are also good for the same purpose.

If a Gangrene ensueth, Sudorificks must be taken inwardly, such are camphorated Spirit of Treacle, the Essence and Spirit of Elder-berries, the Spirit of Harts-Horn with its own proper Salr, Venice-Treacle in Spirit of Wine, camphorated or the distill'd Water of Scorpion Water, Harts-Horn, Citron with Camphire, &c.

As for external Remedies in the beginning of the Gangrene, Spirit of Wine applied hot is excellent; and yet better if Aloes, Frankincense, Myrrh be infused therein. It ought also to be observed, that Camphire must always be mingled in the topical Medicines for the Cure of a Gangrene.

A Decoction of unslack'd Lime, in which Brimstone hath been boil'd, with *Mercurius Dulcis*, and Spirit of Wine, is a very excellent Remedy.

In a considerable Gangrene, after having made deep Scarifications, let Horse-Dung be boil'd in Wine, and laid upon the Part in form of a Cataplasm. This is an approv'd Remedy.

If a *Sphacelus* be begun, scarifie the Part, and apply thereto abundance of *Unguentum Egyptiacum* over and above the Ointments and Cataplasms already describ'd; remembering always, that when the Gangrene degenerates into a *Sphacelus*, all the mortify'd Parts must be incontinently separated or cut off from the sound.

· C H A P. VII.

Of Ulcers in general.

WHAT is an Ulcer ?

An Ulcer is a Rupture of the natural Union of the Parts made a long while ago, which is maintain'd by the *Sanies* that runs out of its Cavity ; or an Ulcer takes its rise from a Wound that could not be well cur'd in its proper time, by reason of the ill Quality of its *Pus* or corrupt Matter.

What difference is there between a Wound and an Ulcer ?

It is this, that a Wound always proceeds from an external Cause, and an Ulcer from an internal, such as Humours that fall upon a Part ; or else a Wound by long remaining open degenerates into an Ulcer.

Whence is the difference of Ulcers derived ?

It is taken from the Causes that produce them, and the Symptoms or Accidents with which they are accompany'd. Thus upon account of their Causes they are call'd Benign or Malignant, Great, Little, Dangerous, or Mortal ; and by reason of their Accidents, they are term'd Putrid, Corrosive, Cavernous, Fistulous, Cancerous, &c.

Do Ulcers always proceed from external Causes, or from an outward Wound degenerated ?

No

No, they sometimes also derive their Origin from internal Causes, as the Acrimony of Humours, or their Malignant Quality; the Retention of a Splinter of a Bone, and other things of the like Nature. These Ulcers are commonly Primitive and the others Degenerate.

What are Putrid, Corrosive, Cavernous, Fistulous and Cancerous Ulcers?

The Putrid Ulcer is that wherein the Flesh is soft and crusty, the Pus and Ichor being viscous, stinking and of a cadaverous smell.

The Corrosive Ulcer is that which by the Acrimony and Malignity of its Sanies, corrodes, makes hollow, corrupts and mortifies the Flesh.

The Cavernous Ulcer is that, the Entrance of which is strait and the bottom broad, wherein there are many Holes fill'd with malignant Sanies, without any callosity or hardness in its sides.

The Fistulous Ulcer is that which hath long, strait, and deep Holes, with much hardness in its sides; the Sanies whereof is sometimes virulent, and sometimes not.

The Cancerous Ulcer is large, having its Lips swoln, hard and knotty, of a brown Colour, with thick Veins round about, full of a livid and blackish sort of Blood. In the bottom are divers round Cavities, which stink extreamly, by reason of the ill Quality of the Sanies that runs out from thence.

Are there no other kinds of Ulcers?

Yes, there are also Verminous, Pocky, Scorbutick, those call'd *Chironia* and *Telephia*, and others, which have much affinity with, and may well

well be reckon'd among the five kinds already specify'd.

What are the means to be us'd in the curing of Ulcers?

Ulcers ought to be well mundify'd, dry'd and cicatriz'd : But with respect to the several Causes and Accidents that render them obstinate, and difficult to be cur'd, it is also requisite to make use of internal Medicines, which may restrain and consume them. If their sides grow callous, they are to be scarify'd, in order to bring them to Suppuration; and if there be any Excrescences, they must be eaten away with corroding Powders, such as that of Alum; or by proper Causticks.

What are the Remedies proper to cleanse and dry Ulcers?

To this purpose divers sorts of Liquors may be us'd, as also Powders and Plaisters: The Liquors are usually made of Briony Roots, the greater Celandine, Lime, and the Yellow-water; a Tincture of Myrrh, Aloes and Saffron, and Whey, whereto is added *Saccharum Saturni*; and the Ulcers may be wash'd or bath'd with these Liquors; and very good Injections be compounded of them.

The Powders are those of Worm-eaten Oak, Alum, and Cinnabar, the last of these being us'd by throwing them upon Fire, and causing the Smoke to be convey'd to the Ulcer thro' a Funnel. The Country People often make use of Potters Earth to dry up their Ulcers, with good Success; but then they must not be of a Malignant Nature.

The

The Plaisters are *Emplastrum de Betonica*, *Diaphysulphuris*, *Deficativum Rubrum*, and others; and the Ointments are such as these:

Take three Yolks of Eggs, half an Ounce of Honey, and a Glass of Wine, and make thereof a mundifying Ointment, according to Art: Otherwise,

Take Lime well wash'd and dry'd several times; let it be mingled with Linseed Oil and Bole, and it will make an excellent Ointment to mundifie and dry; a little *Mercury Precipitate* may be intermixt, if you please, to augment the drying Quality; and *Mercurius Dulcis* may be added in the Injections.

For Ulcers in the Legs, and Cancerous Ulcers, take Plantain Water and Allum Water, or else Spirit of Wine, *Unguentum Aegyptiacum*, and *Venise-Treacle*; or else an Extract of the Roots of round Birth-wort made in Spirit of Wine. Gunpowder alone dissolv'd in Wine, is of singular use to wash the Ulcers, and afterwards to wet the Pledgits which are to be apply'd to them. But here are two particular and specifick Medicines to mollifie a Cancer.

Take *Saccharum Saturni*, Camphire and Soot; let 'em be incorporated with the Juice of House-Leek and Plantain, in a Leaden Mortar; then make a Liniment thereof, and cover the Part affected as lightly as is possible to be done, as with a simple Flaxen Cloth, or a Sheet of Cap Paper: Or else,

Take the distill'd Water of rotten Apples, and mingle it with the Extract of the Roots of round Birth-wort made in the Spirit of Wine,

re-

reserving this Liquor to wash the Part, and to make Injections.

CHAP. VIII.

Of Venereal Diseases.

Of the Chaude-pisse, or Gonorrhæa.

THE Signs of this Disease are a painful Distention of the *Penis* or Yard, and a scalding Pain in making Water, the Urine being pale, whitish, and full of Filaments or little Threads: Sometime the Testicles are swell'd as well as the *Glands* and *Preputium*; and sometimes there is a Flux of a kind of Matter yellowish, greenish, &c.

If there be a great Inflammation in the Yard, Endeavours must be us'd to allay it by letting Blood; and afterward the Patient may take a cooling and diuretick Diet-Drink, as also Emulsions made with cold Seeds in Whey. A very good Decoction may be prepar'd in all Places, and without any trouble, by putting a Dram of *Sal Prunella* into every Quart of Water, whereof the Patient is to drink as often as he can: This Decoction is very cooling and diuretick; and the Use of it ought to be continu'd till the Inflammation be asswag'd. Then some gentle Purges are to be prescrib'd in the beginning; such as an Ounce of *Cassia*, and as much *Manna*,

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na, dissolv'd in two Glasses of Whey, which are to be taken one or two Hours one after another.

Afterward the Patient must be often purg'd with twelve Grains of Scammony, and fifteen Grains of *Mercurius Dulcis*; and these Purgations must be continu'd, till it appears that the Fluxes are neither yellowish, nor greenish, nor of any other bad Colour. When they are become White, and may be drawn into a Thread, they may be stopt with Astringents: Amber and dry'd Bones beaten to Powder, eighteen Grains of each, with one Grain of *Laudanum*, the whole Composition being taken in Conserve of Roses, are very good for this purpose. *Crocus Martis Astringens*, or else its Extract, taken from half a Dram to a whole Dram, in like manner performs the same Operation. As soon as the *Gonorrhœa* is stopt, to be certain of a perfect Cure, a Dram of the *Mercurial Panacea* is to be taken, from fifteen to twenty Grains at a time, in Conserve of Roses. In the mean while if a small Salivation should happen, it must be let alone for the present, since it may be stopp'd at pleasure by Purgations. When it is requisite to restrain the *Gonorrhœa*, *Mercury* must not be given any longer, in regard that it is a Dissolvent, which is only good when the Glandules of the Groin or Testicles are swell'd, or else when it is expedient to set the *Chaudépisse* a running, after it hath been too suddenly stopt. At the same time that the Astringents are taken with the Mouth, Injections are also to be made into the Yard; such as are prepar'd with *Lapis Medicamentosus*, of which one Dram is put into
eight

eight Ounces of Plantane-water. All Astringents that are not Causticks, are proper for the Syringe.

Of Shankers.

They are round Ulcers, and hollow in the middle, which appear upon the *Glands* and the *Prepuce*. To cure them, they must be touch'd with the *Lapis Infernalis*, and brought to Suppuration by the means of red Precipitate mix'd with the Ointment of *Andreas Crucius*. *Oleum Mercurii* laid on a Pledgit or Bolster, is very good to open Shankers, and consume their Flesh. The Patient must be well purg'd with *Mercurius Dulcis* and Scammony, taking twelve or fifteen Grains of each in Conserve of Roses; and after these Purgations are sufficiently repeated, he may take the *Mercurial Panacea*. It is an excellent Remedy for all sorts of Pocky Distempers not yet consummated, or arriv'd at the greatest height of Malignity.

Of Buboës.

Buboës are gross Tumours or Abscesses that arise in the Groin, the perfect Maturity of which is not to be waited for in order to open them; because it is to be fear'd, lest the corrupt Matter remaining therein too long, might be convey'd into the Blood by the Circulation, and so produce the Grand Pox: Therefore it is necessary to open them betimes with a Lancet, or else with Causticks, if they are too hard. They ought
to

to be suppurated for a considerable time: The Patient must be well purg'd with Scammony and *Mercurius Dulcis*: He must also take the *Mercurial Panaceas*.

Of the Pox.

This loathsome Disease begins sometimes with a virulent *Gonorrhœa*, and a weariness or faintness at the same time seizeth on all the Members of the Body: It is usually accompany'd with Salivation and the Head-ach, which grows more violent at Night: Pricking Pains are also felt in the Arms and Legs, the Palate of the Mouth being sometimes ulcerated. If it be an inveterate Pox, the Bones are corrupted, and *Exostoses* happen therein; divers Spots with dry round and red Pustules appear in the Skin; and the Cartilages or Gristles of the Nose are sometimes eaten up. But when this Disease is come to its greatest height of Malignity, the Hair falls off; the Gums are ulcerated; the Teeth are loose, and drop out; the whole Body is dry'd up; the Eyes are livid; the Ears tingle; the Nose becomes stinking; the Almonds of the Ears swell; the *Voula* or Palate is down; Ulcers break out in the Privy Parts; Bubos arise in the Groin; as also Warts in the Glands and *Præputium*; and *Condylomas* in the *Anus*.

Indeed the Pox may be easily cur'd in the beginning; but when it hath taken deep Root by a long continuance, it is not extirpated without much difficulty; more especially if it be accompany'd with Ulcers, Caries, and *Exostoses*; the

the Person afflicted with it having an ill Constitution, and his Voice grown hoarse.

The Spring and Summer are the proper Seasons of the Year for undertaking the Cure of this Disease: In order to which it is necessary that the Patient begin with a regular Diet, lodging in a warm Place, and taking such Aliments as yield a good Juice; as Jelly-broth made with boil'd Fowl: Let him drink Sudorifick Decoctions, prepar'd with the Wood of *Guaicum*, *China-Root*, and *Sarsaparilla*, and let him abstain from eating any thing that is high season'd: Let him take Clysters to keep his Body open; sometimes also he may be let Blood, and purg'd with half a Dram of *Jalap*, and fifteen Grains of *Mercurius Dulcis*. The Purgations may be repeated as often as it shall be judged convenient; and then the Patient may be bath'd for nine or ten Days, every Morning and Evening; during which time he may take volatile Salt of Vipers, the Dose being from six to sixteen Grains; or else Viper's Grease from half a Dram to a whole Dram in Conserve of *Roses*.

Afterward it will be necessary to proceed to Fluxion, by Frictions with *Unguentum Mercurii*, which is made of crude *Mercury* stirr'd about in a Mortar with Turpentine, and then the whole mingled with Hogs-Grease, one part of *Mercury* being usually put into two parts of Hogs-Grease. The Rubbing is begun at the Sole of the Feet, ascending to the Legs, and the inside of the Thighs; but the Back-Bone must not be rubb'd at all. When the Persons are tender, or of a weak

weak Constitution, a single Friction may be sometimes sufficient. Thus the Patient must be rubb'd at the Fire, after he hath taken a good Mels of Broth; but I would not advise it to be done with more than one or two Drams of *Mercury* at a time, without reckoning the other Ingredients. Then the Patient must be dress'd with a Pair of Linen Drawers, and laid in his Bed, where his Mouth may be look'd into from time to time, to see whether the *Mercury* hath taken effect; which may be easily known, by reason that his Tongue, Gums and Palate swell, his Head akes, his Breath is strong, his Face red, and he can scarce swallow his Spittle; or else he begins to salivate.

If none of these Signs appear, the Rubbing must be begun again in the Morning and Evening: Then if no Salvation be perceiv'd, (for sometimes four or five Frictions are made successively) a little *Mercurial Panacea* may be taken inwardly, to promote it. During the Frictions, the Patient is to be nourish'd with Eggs, Broths, and Gellies: He must also keep his Bed in a warm Room, and never rise till it shall be thought fit to stop the Salivation, which continues Twenty or Twenty five Days: Or rather till it becomes Laudable; that is to say, till it be no longer stinking nor colour'd, but clear and fluid.

If a Looseness should happen during the Salivation, it would cease; so that to renew it, the Looseness may be stay'd with Clysters made of Milk and the Yolks of Eggs: And in case the Salivation should not begin afresh, it must be excited with a slight Friction: But if it should

should be too violent, it may be diminish'd by some gentle Purge, or with four or five Grains of *Aurum Fulminans*, taken in Conserve of Roses.

Three or Four Pints of Rheum are commonly salivated every Day in a Basen made for that purpose, which the Patient holds in his Bed near his Mouth, so as the Spit-
tle may run into it. But if the Fluxing should not cease of it self at the time when it ought, he must be purg'd to put a stop thereto. If any Ulcers remain in his Mouth, to dry them up, Gargarisms are to be often us'd, which are made of Barley-water, Honey of Roses, or lukewarm Wine.

The Warts are cur'd by tying them, if a Ligature be possible; or else they may be consum'd with Causticks, such as the Powder of Savine, or *Aqua Fortis*, taking care to preserve the neighbouring Parts: Sometimes they are cut, left to bleed for a while, and bath'd with warm Wine.

When the Patient begins to rise, he must be purg'd, his Linen, Bed and Chamber, being chang'd; and afterward his Strength is to be recruited with good Victuals and generous Wine. If he were too much weakned, let him take Cows Milk with *Saccharum Rosatum*.

If the Pox were not inveterate, the Fluxing might be excited by the *Panacea* alone, without any Frictions: For after the Phlebotomy, Purgations and Bleedings duly administred, the Patient might take Ten Grains of this in the Morning, and as many at Night; on the next Day Fifteen Grains might be given, and the like Quantity

Quantity at Night; on the Third Day Twenty Grains might be given both Morning and Evening: On the Fourth Day Twenty five Grains in the Morning, and as many at Night; and on the Fifth Day Thirty Grains in the Morning, and the very same Quantity in the Evening, continuing thus to augment the Dose, till the Fluxing comes in abundance: And it may be maintain'd by giving every two or three Days Twelve Grains of the same. This Course must be continually follow'd till the Salivation becomes Laudable and the Symptoms cease.

The Manner of making the Mercurial Panacea.

To prepare this *Panacea*, it is requisite to take *Mercury* reviv'd from *Cinnabar*, because it is more pure than that which is immediately dug out of the Mine. The *Mercury* is prepar'd after this manner: Take a Pound of artificial *Cinnabar* pulveriz'd, and mingled exactly with Three Pound of unslack'd Lime, in like manner beaten to Powder: Let this mixture be put into a Retort of Stone, or Glass luted, the Third part of which at least remains empty: Let it be placed in a reverberating Furnace; and after having fitted a Recipient fill'd with Water, let the whole be left during Twenty Four Hours at least: Then let the Fire be put under it by degrees, and at length let the Heat be very much augmented, wherenpon the *Mercury* will run drop by drop into the Recipient: Let the Fire be continu'd till nothing comes forth, and the Operation will be perform'd generally in six or seven Hours:

Hours: Then pour the Water out of the Re-
cipient; and having wash'd the *Mercury*, to
cleanse it from some small Quantity of Earth
that may stick to it, let it be dry'd with
Cloths, or else with the Crum of Bread:
Thus Thirteen Ounces of *Mercury* may be
drawn off from every Pound of artificial Cinnabar.

The *Panacea* is made of *Mercurius Dulcis*,
and this of Corrosive Sublimate: To make
the Corrosive Sublimate, put sixteen Ounces
of *Mercury* reviv'd from Cinnabar, into a Ma-
trass; pour upon it eighteen Ounces of Spirit
of Nitre; place the Matrass upon the Sand, which
must be somewhat hot, and leave it there till
the Dissolution be effected: Then pour off this
Liquor, which will be as clear as Water,
into a Glass Vial, or into a Stone Jug, and let
its Moisture evaporate gently over a Sand-
Fire, till a white Mass remains; which you
may pulverize in a Glass Mortar, mingling it
with sixteen Ounces of Vitriol calcin'd, and as
much decrepitate Salt: Put this Mixture into a
Matrass, two third Parts of which remain emp-
ty, and the Neck of which hath been cut in the
middle of its Height; then fix the Matrass in
the Sand, and begin to kindle a gentle Fire un-
derneath, which may be continued for three
Hours; afterwards let Coals be thrown upon it
till the Fire burn very vehemently, and a Subli-
mate will arise on the top of the Matrass; so
that the Operation may be perform'd within the
Space of six or seven Hours. Let the Matrass
be cool'd and afterward broken; avoiding a
kind of Flower or light Powder, which flies
up

up into the Air as soon as this Matter is removed; whereupon you'll find nineteen Ounces of very good corrosive Sublimate; but the red *Scoria* or Dross which settles at the bottom must be cast away as unprofitable. This Sublimate being a powerful *Escarotick*, eats away proud Flesh, and is of singular Use in cleansing old Ulcers. If half a Dram thereof be dissolv'd in a Pint of Lime-water, it gives a yellow Tincture; and this is that which is call'd the *Phagedenick Water*.

The sweet Sublimate, of which the *Panacea* is immediately compos'd, is made with sixteen Ounces of Corrosive Sublimate, pulveriz'd in a Marble or Glass Mortar, intermixing with it by little and little, twelve Ounces of *Mercury* reviv'd from Cinnabar; Let this Mixture be stirr'd about with a wooden Pestle, till the Quicksilver becomes imperceptible; then put the Powder, which will be of a grey Colour into divers Glass Vials, or into a Matraass, of which two third Parts remain empty; place your Vessel on the Sand, and kindle a small Fire in the beginning, the Heat of which may be afterward encreas'd to the Third Degree: Let it continue in this Condition till the Sublimate be made; and the Operation will be generally consummated in four or five Hours: Whereupon you may break your Vial, and throw away as useless, a little light Earth that lies at the bottom. You must also separate that which sticks to the Neck of the Vials, or of the Matraass, and keep it for Ointments against the Itch;

luch; but carefully gather together the white Matter which lies in the middle, and having pulveriz'd it, cause it to be sublimated in the Vials or Matrafs, as before. This Matter must also be separated again (as we have already shewn) and put into other Vials to be sublimated a third time. Lastly, the Terrestrial Parts in the bottom, and the Fuliginous in the Neck of the Vials, must be, in like manner, separated, still preserving the Sublimate in the middle, which will then be very well dulcify'd, and amount to the Quantity of Twenty five Ounces and an half: It is an efficacious Remedy for all sorts of Venereal Diseases; removes Obstructions, kills Worms, and purgeth gently by Stool, being taken in Pills, from six Grains to thirty.

Of the proper Composition of the Mercurial Panacæa.

Take what Quantity you please of sweet Sublimate, reduce it to Powder in a Marble or Glass Mortar, and put it into a Matrafs, three quarters whereof remain empty, and of which you have cut off the Neck in the middle of its height: Then place this Matrafs in a Furnace or *Balneum* of Sand, and make a little Fire underneath for an Hour, to give a gentle Heat to the Matter, which may be augmented by little and little to the third Degree: Let it continue in this state about five Hours, and the Matter will be sublimated within that space of time.

L

Then

Then let the Vessel cool, and break it, throwing away as unprofitable, a little light sort of Earth, of a reddish Colour, which is found at the bottom, and separating all the Sublimate from the Glass. Afterward pulverize it a second time, and let it be sublimated in a Matraass, as before : Thus the Sublimations must be reiterated seven several times, changing the Matrasses every time, and casting away the light Earth. Then having reduc'd your Sublimate to a very fine impalpable Powder, by-grinding it upon a Porphyry or Marble Stone, put it into a Glass Cucurbit, pour into it alkaliz'd Spirit of Wine to the height of four Fingers; cover the Cucurbit with its Head, and leave the Matter in Infusion during fifteen Days, stirring it about from time to time with an Ivory *Spatula*. Afterward set your Cucurbit in *Balneo Maria*, or in a vaporous Bath, make fit a Recipient to the Mouth of the Alembick; lute the Joints exactly with a moistned Bladder, and cause all the Spirit of Wine to be distill'd with a moderate Fire: Let the Vessels be cool'd and unluted, and the *Pannacea* will appear at the bottom of the Cucurbit. If it be not already dry enough, you may dry it up with a gentle Fire in the Sand, stirring it with an Ivory or wooden *Spatula* in the Cucurbit itself till it be reduc'd to Powder. It may be kept for use in a Glass Vessel, as a Remedy of very great Efficacy for all sorts of Veneral Diseases, as also for Obstructions, the Scurvy, *Scrophula* or King's-Evil, Tetter, Scab, Scurf, Worms, *Ascarides*, inveterate Ulcers, &c. The Dose is from six Grains to two Scruples, in Conserve of Roses.

A
TREATISE
OF THE
DISEASES
OF THE
BONES.

CHAP. I.

Of the Dislocation of the Bones.

WHAT are the Diseases incident to the Bones?

They are Five in number; viz. Dislocation, Fracture, Caries or Ulcer, *Exostosis* and *Nodus*.

What is a Dislocation or Luxation?

It is the slipping of the Head of one Bone out of the Cavity of another, with an Interdiction, which

which disables the Part from performing its Natural Motion: Or else it is the disjoining of two Bones united together for the Motion of a Part.

How many Causes are there of Dislocation in general?

Two, that is to say, one violent and the other gentle; thus the Dislocation is made violently in Falls, Strains, Knocks and Blows; but it is done gently and slowly by a Fluxion of Humours, as well as by a gradual Collection of 'em between the Joints and the Ligaments, the Relaxation or Loosning of which gives occasion afterward to the Head of the Bone to go out of its Place; whence this Consequence may well be drawn, *viz.* That a violent Dislocation usually depends upon an external Cause, and a slow one upon an internal.

After how many manners doth a Dislocation happen?

Two several ways, *viz.* the first is call'd compleat, total and perfect; and the second incomplete, partial, and imperfect: But both may happen before, behind, on the inside, and without; and may also be simple or complicated.

What are the Signs of a perfect, total and compleat Dislocation?

It is when a hard Tumour or Swelling is perceiv'd near a Hole in the Place of the Joint, great Pain being felt in the Part, and the Motion of it abolish'd.

What are the Signs of an imperfect, partial, and incomplete Dislocation?

It is when the Motion is streightned, and weaker than ordinary, so that some Pain is felt in the Joint, and a Deformity may be discern'd therein, by comparing the hurt Part with the opposite, which is sound : This Dislocation is otherwise call'd a Sprain, when it proceeds from an external Cause; or else it is term'd a Relaxation, when it happens by an internal.

What is a simple, and what is a complicated Dislocation or Luxation ?

The Dislocation is properly simple, when it hath no concomitant Accidents; and it is complicated when accompany'd with some ill Symptoms or Accidents, such as Swellings, Inflammations, Wounds, Fractures, &c.

What are the Means proper to be us'd in a simple Dislocation ?

A speedy and simple reducing thereof, which is perform'd by extending the dislocated or-luxated Member, and thrusting back the Head of the Bone into its natural Place. Afterward the Joint must be strengthened with a Fomentation made with *Provence* Roses, the Leaves of Wormwood, Rosemary, Camomile, *Sr. John's-wort* and Oak-Moss, boil'd in the Lees of Wine and Forge-Water; keeping the Part well bound up, and sustain'd in a convenient situation. But if any ill Consequence is to be fear'd, apply *Emplastrum Oxyrocium*, or *Diapalma* dissolv'd in Wine.

What is to be done in a complicated Dislocation ?

The Accidents must be first remov'd, and then the Bone may be set, which is impossible to be done otherwise; it being dangerous even to make an Attempt before, by reason of the too great Violence with which it is effected, and which would infallibly produce a Convulsion or a Gangrene.

If the Dislocation be accompany'd with a Wound, must the Wound be cur'd before any Endeavours are us'd to reduce it?

No, but the Symptoms of the Wound, which hinder the Operation, must be taken away, as the Swelling, Inflammation, and others of the like Nature; and then it may be reduc'd, and the Wound may be dress'd according to the usual Method.

If a Dislocation be complicated with a Fracture, what is to be done then?

It is necessary to begin with reducing of the Dislocation, and afterward to perform that of the Fracture, by reason of the Extension which must be made to reduce the Dislocation, which would absolutely hinder the Settling of the Fracture.

How is the Inflammation and Swelling to be asswag'd?

With Linen Cloths dipt in Brandy and common Water, which must be often renew'd; or else with the Tops of Wormwood and Camomile, with Sage and Rosemary boil'd in the Lees of Wine, wherein the Compresses and Bands are to be steep'd. But all Repellants and Astringents must be avoided.

How doth it appear that the Reduction is well perform'd?

By

By the re-establishment of the Part in its natural State, by its being free from Pain, by its regular Motion, and by its conformity to the opposite Part which is sound.

What Dislocations of Parts are most difficult to be reduc'd?

Those of the Thighs with the Hip-Bones, which are almost never perfectly set; that of the first *Vertebra* is extremely difficult to be reduc'd; and those of the Lower Jaw and Soles of the Feet are mortal.

The reducing of Dislocations is perform'd with greater facility in Infants than in Persons advanc'd in Years; but it becomes most difficult when it is deferr'd for many Days, by reason of the overflowing of the *Lympha* and nutritious Juice.

If an Inflammation should happen before the Member is reduc'd, nothing can be done till it be allay'd, as we have already intimated; but to prevent and mitigate it, the dislocated Joint, and the neighbouring Parts may be bath'd with luke-warm Wine, in which hath been boil'd the Tops of *St. John's-wort*, *Camomile*, *Rosemary*, *Staceas Arabica*, and other ingredients of the like Nature; the Bands must be also steep'd in the same Liquor.

If an *Oedematous* Tumour arise in the luxated Member after the Joint hath been set, it is requisite to take Internal Sudorificks, and to apply Liniments made with the distill'd Oil of *Tartar*, and of *Humane Bones*, which may be rectify'd with burnt *Harts-horn*, or some other part of Animals, to take away its stink: Or else take yellow Wax, and very white Rosin,

melt the whole Mass, and put into it white Amber and Gum *Elemi*, a sufficient quantity of each, to make a Composition to be incorporated with Balsam of *Peru*: a Plaister of which may be prepar'd, and apply'd to the dislocated Member; but the Plaister must not be laid across, lest it should contract the Part too much. The whole Member may also be anointed with Oil of St. *John's*-wort, or with the distill'd Oil of Turpentine; or rather with a simple Decoction of Nervous Plants in Wine.

If the Bone be put out of its place by a coagulated sort of Matter like Mortar or Plaister, Resolutes and Attenuants are to be us'd, such as the volatil Spirit of Tartar prepar'd with the Lees of Wine, volatil Spirit of Tartar distill'd with Nitre in a Retort with a long Neck, or Spirit of Tartar prepar'd by Fermentation with Tartar and its proper *Alkali*: This last is the best of all, and the use thereof ought to be continu'd. The volatil Salt of Humane Bones is also very efficacious; but it is necessary to begin first with the taking of Laxative and Sudorifick Medicines, appropriated according to the respective Circumstances. The Spirit of Earth-Worms may be also apply'd outwardly, which is made by Fermentation, and may be often laid on the Part, either alone, or with the Spirit of *Sal Ammoniack*.

If a dislocated Bone be not set in good time, a *Coagulum*, or kind of curdled Substance is form'd in the Cavity, which hinders the reducing of it to its place; but this *Coagulum* may be dissolv'd with the following Medicament before you attempt to set the Bone. Take one
part

part of the distill'd Oil of Human Bones, two parts of foetid Oil of Tartar ; mingle the whole, and add quick Lime to be distill'd in a Retort : Let the Parts be fomented with this Oil.

If the Dislocation hapned by the Relaxation of the Ligaments, recourse may be had to universal Sudorificks taken inwardly ; as also to such Medicines as are full of an unctuous and volatil Salt, particularly Aromatick Oils, and Spirit of Sal Ammoniack. In the mean while Aromatics Resolutives and moderate Astringents may be apply'd outwardly.

CHAP. II.

Of the Fractures of Bones.

What is the Fracture of a Bone ?

It is the Division of the Continuity of its Parts.

After how many different manners may a Bone be broken ?

Three several ways, viz. cross-wise, side-wise, in its length, and perhaps in Shatters or Splinters.

By what means may a Bone be fractur'd ?

It may happen to be done by three sorts of Instruments, viz. such as are fit for bruising, cutting, or wrestling ; that is to say, a Bone may be divided in the Continuity of its proper Parts, by Contusion, Incision, or Contorsion.

How is the Fracture of a Bone discover'd ?

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Divers ways, viz. by the ill Disposition of the Patt, which becomes shorter; by its want of Motion; by its flexibility or plianness elsewhere than in its Articulations; by the unevenness that may be perceiv'd in its Continuity; by the cracking which is heard; sometimes also by the shooting forth of one of its ends through the Flesh which it hath open'd; and lastly, by a Comparison made thereof with the sound Part on the other side, as that of the Right Arm with the Left.

What kind of Fracture is most difficult to be discern'd?

It is that which happens in the length of the Bone, commonly call'd a Cleft or Fissure, which gives occasion to very great Symptoms when it is unknown: But it may be found out by the Pain and Swelling felt at the bottom of the Cleft in touching it; besides the Conjectures which may be made from the Relation of the Person who hath had a Fall, and might have heard the cracking of the Bone.

What sort of Fracture is most difficult to be cur'd?

The shattering or splitting of a Bone in pieces, by reason of the great number of Splinters, which daily cause new Pains and Suppurations.

What is a simple, and what is a complicated Fracture?

The simple Fracture is that whereby the Bone is broken, without any other Accident; and the complicated Fracture is that which is follow'd by some Accident; as that in which there is a splitting of the Bone in pieces, or
where

where the Bone is broken in two several places, or else when the Fracture is accompanied with a Luxation, a Wound, an Inflammation, or other Circumstances of the like Nature.

Are old Men or Children most subject to these Fractures of the Bones?

Old Men, because their Bones are drier; whereas those of Infants are almost Cartilaginous, and yield or give way to the violence offered to 'em; from whence proceed the sinkings and hollowness that happens in their Skull, especially in the Mould of their Heads, or elsewhere; for which a Remedy is found out by the means of Plaisters, Splints, and Bandages, fitted to the shape of the Parts. It is also on the same Account that Bones are more easily broken in the Winter than in the Summer.

In what Parts are the Fractures of Bones most dangerous?

They are those that happen in the Skull and Joints; in the former by reason of the Brain: and in the latter in regard of the Nervous Parts.

What Course is to be taken by a Surgeon who is sent for to cure a Fracture?

He ought to do three things, that is to say, at first he must incessantly endeavour to reduce it, to the end that Nature may re-unite the Parts with great Facility, and that its Extremities may be brought together again with less trouble, before a Swelling, Inflammation, or Gangrene happen in the Part. Afterward he is to use means to retain the Parts in their proper Figure; and Natural

ral Situation, and to prevent all sorts of Accidents.

How is the setting of a broken Bone to be perform'd?

When the Fracture is Cross-wise, it must be reduc'd by Extension and contra-Extension; and when it is in length, the Coaptation or bringing together again of the Sides, is only necessary.

What is to be done in a Fracture complicated with a Wound?

The Operator must first reduce it, and then administer the other Helps, as in a simple Fracture.

How may it be known that the reducing of the Fracture is well perform'd?

When the Pain ceaseth; when the Part hath resum'd its natural Shape; when no Unevenness is any longer perceiv'd therein; and when it is conformable to the sound Part on the other side.

What are the Signs which shew that the Splinters remain in the Fracture after it hath been reduc'd?

They are the secret and continual Workings of the Fibres, or Twitchings, that are felt by Intervals in the Part, with great Pains, which are the Indications of an Abscess arising therein; and when a Wound is join'd to the Fracture, the Lips of it are puff'd up, and become more soft and pale, the purulent Matter abounding also more than ordinary.

When Splinters appear, must they be drawn out by force?

By

By no means ; for great Care ought to be taken to avoid all manner of violent Operations ; it being requisite to wait for their going out with the purulent Matter ; or at most to facilitate their Passage by the use of Injections of the Tincture of Myrrh and Aloes ; by the Application of *Emplastrum Andrea Crucii*, and by the help of the Forceps.

How is a simple Fracture to be dress'd, after it hath been reduc'd ?

The Parts are to be strengthened and consolidated with Liniments of *Oleum Lumbricorum*, or of Oil of St. John's-wort mingl'd with Wine, Brandy, or *Aqua-Vita* ; with Fomentations of Red-Roses, Rosemary, and St. John's-wort boil'd in Wine ; and with *Emplastrum contra Rupturam*, or *de Betonica*, carefully wrapping up the broken Member, but after such a manner that the two Extremities may not cross one another ; and that a small Space may remain open between both. Afterward the Splints and Bands are to be apply'd, taking care to avoid binding them too hard, and to take them off every three Days. in order to refit them, to abate troublesome Itchings, and to give Air to the Part ; by these means preventing the Gangrene, which might happen by the Suffocation of the natural Heat. If the Thighs or Legs are broken, Scarves are to be us'd to support and stay them in the Bed.

What space of time may there be allow'd for curing the Fracture of a Bone ?

The Cure will take up more or less time, according to the variety of the Parts, or the different thickness of the Bones : Thus to form
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the *Callus* of the broken Jaw-bone, twenty Days may well be allotted ; for that of the Clavicle or that of the Shoulder-bone, twenty four : for that of the Bones of the Elbow, thirty ; for that of the Arm-bone, forty ; for that of the Wrist-bone, and those of the Fingers, twenty ; for that of the Ribs, twenty ; for that of the Thigh-bone, fifty ; for that of the Leg-bone, forty ; for that of the Bones of the *Tarsus* and Toes, twenty.

What ought to be done in-particular to promote the Formation of the Callus ?

The fractur'd Part must be rubb'd with *Oleum Lumbricorum* and Spirit of Wine heated and mingled together : The Decoction of Agrimony, Savine, and Saxifrage are also to be us'd, and the *Lapis Osteocolla* is a Specifick : It is usually given in great Comphrey Water, or in a Decoction of Perewinkle made with Wine, and is often-reiterated.

C H A P. III.

Of the particular Fractures of the Skull.

WHAT is a Fracture of the Cranium or Skull.

It is a Wound of the Head complicated with a Fracture of the Skull-bone.

After how many manners may the Skull be fractur'd ?

Three

Three several ways, viz. by Contusion, by Incision, and by Puncture.

What is the most dangerous of these Fractures?

That which happens by Contusion; because the Concussion and Commotion is greater.

Do all the Fractures of the Skull require the use of the Trepan?

No, the Fractures must be deep which stand in need of the help of such an Instrument; for those that are superficial may be cur'd by a simple Exfoliation.

What is that deep Fracture wherein the use of the Trepan is absolutely necessary?

It is that which is made in the two Tables of the Skull, penetrating to the *Meninges* of the Brain; upon which at that time the Blood is extravasated, and must be remov'd by the Operation of the Trepan.

How may it be discover'd that the two Tables of the Skull are broken?

By Inspection or Reason.

Are not the Eyes sufficient alone, and are they not more certain than Reasonings?

Yes; but forasmuch as things are not always seen, there is often a necessity of making use of rational Deductions to find out that which the Eyes cannot discern.

When doth it happen that the Eyes alone discover the Fracture?

When the Wound is large and wide, so that it may be immediately view'd.

When doth it happen that Reason supplies the defect of the Eyes?

When the Wound is so small that the Bone cannot be seen, and nothing appears but the Accidents.

What

What are the Accidents or Signs of the Fracture of the Skull?

They are a dimness of the Sight, and loss of the Understanding, which happen at the very Moment when the Fall or Blow is receiv'd, with the Vomitting of Choler that follows soon after: These Signs are call'd *Univocal*. And there are others call'd *Equivocal*, and which confirm the former; as a Flux of Blood thro' the Nose, Eyes, and Ears, redness of the Eyes, heaviness of the Head, and puffing up of the Face; as also afterward Drowsiness, shivering of the whole Body, Fever, *Deliriums*, Convulsions, &c.

Must all these Signs appear before a Determination can be made of the necessity of using the Trepan?

No, it is sufficient to have the *Univocal* Signs to make a Crucial Incision in the place of the Wound, and to lay bare the Bone, in order to observe the Fracture, which sometimes is so fine, that the Operator is oblig'd to make use of Ink, which insinuates it self into the Cleft, and of a particular Instrument with which the black Line that hath penetrated to the bottom, cannot be rubb'd out; whereas it may be easily defac'd when the Fracture is only superficial.

How long time is commonly spent before the appearing of the Accidents?

In the Summer Season they appear in three or four Days, and at the latest in seven; in Winter they are slower, and sometimes do not happen till the fourteenth Day: But at the end of this term, it may be affirm'd that the Trepan is often unprofitable.

What

What it requisite to be done in a doubtful Occasion? must the Trepan be apply'd or omitted?

The Surgeon is to have recourse to his own Conscience and Discretion, which ought to serve as a Guide, and requires that we should always act according to the known Rules of Art; inso-much that after having well consider'd the Accidents, with all the Circumstances of the Wound, if there be no good Grounds for the undertaking of the Operation, it is expedient to desist, and in this case to have deference to the Advice of other able Surgeons of the same Society, rather than to rely too much upon his own Judgment, to the end that he may be always secure from all manner of Blame.

Is the Trepan apply'd upon the Fracture?

No; but on one side of it, and always in a firm place.

What course it to be taken when a Fracture is found in a Suture?

A double Trepan is to be made and apply'd on each side of the Suture, by reason of the effusion of the Blood which may happen therein.

What Method ought to be observ'd in the curing of the Wounds of the Head, and Fractures of the Skull?

In simple Wounds of the Head it is necessary only to make use of Balsams, and to lay over them *Emplastrum de Betonica*. When there is a Contusion either in the *Pericranium*, or in the Skull, the Wound must be kept open till after Suppuration or Exfoliation.

When there is only a Bunch without any Wound or Accident, it must speedily be dissolv'd with Plaister or Mortar, Chimney-Soot, Oil

Oil of Olives, and Wine, laid upon the Part between two Linen Rags; or else with Soot, Spirit of Wine, and Oil of *St. John's-wort*, wherein the Bolsters are soak'd, to be in like manner apply'd with a Band.

Wounds of the Head accompany'd with a Fracture, absolutely require the application of the Trepan, wherein it is requisite to make use of Oil of Turpentine to the Membranes of the Brain; or else Spirit of Wine mingl'd with Oil of Almonds, and not with the Oil or Syrrup of Roses; and to endeavour to cause a plentiful outward Suppuration.

Besides, it must not be neglected to enjoin the wounded Person to be let Blood both before and after the Operation, if he hath a Fever or a Plethory; and more especially it is to be remembered to cause his Body to be kept open at least every other Day with Clysters, obliging him to keep a good Diet, and to avoid all violent Agitations both of Body and Mind, abstaining from eating Flesh till the fourteenth Day. All manner of Venery and Conjugal Embraces, which prove fatal at this time, are to be prohibited during forty Days, to be counted from the Day of the Operation; as they are also in all other considerable Wounds.

C H A P. IV.

*Of the Caries or Ulcer of the Bones,
Exostosis, and Nodus.*

What is Caries ?

It is the Putrefaction of the Substance of the Bone, or else its Ulcer or Gangrene.

Whence doth the Caries of the Bone derive its Original ?

It proceeds from an internal and external Cause ; the former being that which hath been produc'd at first in the Substance of the Bone ; and the other that which takes its Rise from an inveterate Ulcer in the Flesh, which hath communicated its Malignity to the Substance of the Bone, and by that means corrupted it.

How is the Caries known which proceeds from an inward Cause ?

By the continual and violent Pains which are felt before, and continue for a long time without diminution ; as also afterward by the alteration of the Flesh that covers the Bone, and which becomes soft, spongy and livid.

By what means is a Caries, that derives its Original from an outward Cause, discover'd ?

By the quality of the purulent Matter that issueth out of the Ulcer in the Flesh, which is blackish, Unctuous, and extremely stinking ; as also by the help of the Probe, that discovereth an

an Asperity or Roughness in the Bone when it is laid bare.

What Means are to be us'd in order to Cure a Caries proceeding from an external Cause?

The Powder of Flower de-Luce may be us'd, and it is sufficient for that purpose, when the Caries is superficial; but it is necessary to take *Oleum Guaiaci*, and to soak Pledgits therein, to be laid upon the Ulcer when it is deep; or else *Aqua-vita*, or Brandy, in which have been infus'd the Roots of Flower-de-Luce, Cinnamon and Cloves. Lastly, the Actual Cautery, which is Fire, must be apply'd thereto.

What is to be done when the Caries proceeds from an internal Cause?

The Flesh must be open'd to give passage to the Sanies that runs out of the ulcerated Bone, to the end that exfoliation may be procur'd; and if the Ulcer hath not as yet laid open the Bone on the outside the Trepan ought to be apply'd: but the Ulcer or Caries must be afterward handl'd, as we have even now declar'd.

What is Exostosis?

It is the Swelling of a Bone made by the settling of a corrupt Humour in its proper Substance.

What is a Nodus?

It is a kind of gummy and wavering Tumour, which is form'd by the settling of a gross Humour between the Bone and the *Periosteum*.

Are Exostoses and Nodules suppurable Tumours?

Yes, because they sometimes produce Ulcers and Gangrenes in the Bone, which are call'd
Caries,

Caries, proceeding from an internal Cause; nevertheless they are generally dissolv'd by Frictions with *Unguentum Griseum*, or by the application of Plaisters of Tobacco, or *Emplastrum de Vigo quadruplicato Mercurio*; taking also to the same purpose internal Diaphoreticks, and Sudorifick Medicines, with convenient Purgatives.

CHAP. V.

Of Cauteries, Vesicatories, Setons, Cupping Glasses, and Leeches.

WHat is a Vesicatory?

The Name of Vesicatory may be attributed to every thing that is capable of raising Blisters or Bladders in the Skin; nevertheless in Surgery, by a Vesicatory is understood a Medicament prepar'd with *Cantharides* or *Spanish Flies* dry'd, which are beaten to Powder, and mingl'd with Turpentine, Plaisters, Leaven, and other Ingredients.

In what Places, and after what manner are Vesicatories usually apply'd?

They are apply'd every where accordingly as there is occasion to draw out or discharge some Humour from a Part: In Defluxions of Rheum upon the Eyes or Teeth, they are laid on the Neck and Temples; in Apoplexies, behind the Ears; and so of the rest, observing always to make Frictions on the Places where the Ap-
pli-

plication is to be made, to the end that the Vescatory may sooner take effect.*

How long time must the Vescatory continue on the Part?

The Blisters are generally rais'd by them within the space of five or six Hours; yet this Operation depends more or less upon the Fineness of the Skin; and when the Bladders or Blisters appear, it is requisite to defer the opening of them for some time, to the end that Nature may have an Opportunity to introduce a new Scarf-Skin, by which means the Pain may be avoided that would be felt, if the Skin were too much expos'd to the Air.

What is a Cautey?

It is a Composition made of many Ingredients, which corrode, burn, and make an Escar on the Part to which they are apply'd.

How many sorts of Cauteries are there in general?

There are two kinds, viz. the Actual, and the Potential; the former are those that have an immediate Operation, as Fire, or a red-hot Iron; and the others are those that produce the same Effect, but in a longer space of time; such are the Ordinary Cauteries compos'd of Caustick Medicaments.

Which are the most safe, the Actual or the Potential Cauteries?

A distinction is to be made herein; for Actual Cauteries are safest in the Operation, because they may be apply'd wheresoever one shall think fit, as also for as long a time, or for any Purpose: Whereas the Potential cannot be guided after the same manner. But in Hæmorrhages,

thages, the Potential Cauteries are most eligible, by reason that the Escar produc'd by them not being so speedily form'd, the Vessels are better clos'd and they are not so subject to open again when it falls off; as it often happens in the fall of an Escar made by Fire.

In what Places are Cauteries usually apply'd?

In all Places where an Attraction is to be made, or an Intemperature to be corrected, or a Flux of Humours to be stop't, by inducing an Escar on the Part: However, they are commonly laid upon the Nape of the Neck, between the first and second *Vertebrae*; on the outward Part of the Arm in a small Hole between the Muscle *Deltoides* and the *Biceps*; above the Thigh, between the Muscle *Sartorius*, and the *Vastus Internus*; and on the inside of the Knee, below the Flexors of the Leg; observing every where that the Cautery be plac'd near the great Vessels, to the end that it may draw out and cleanse more abundantly.

What is the Composition of the Potential Cauteries?

They may be made with quick Lime, Soap and Chimney-Soot; or else take an Ounce of *Sal Ammoniack*, two Ounces of burnt *Roman-Vitriol*, three Ounces of quick Lime, and as many of calcin'd Tartar; mingle the whole Mass together in a *Lixivium* of Bean-Cod Ashes, and cause it to evaporate gently to a Consistence: Let this Paste be kept for use in a dry Place, and in a well stop't Vessel: Or else the Silver Cautery, or *Lapis infernalis*, may be prepar'd after the following manner:

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Take what Quantity you please of Silver; let it be dissolv'd with thrice as much Spirit of Nitre in a Vial, and set the Vial upon the Sand-Fire, to the end that two Third Parts of its Moisture may evaporate: Then pour the rest scalding-hot into a good Crucible, plac'd over a gentle Fire, and the Ebullition being made, the Heat of the Fire must be augmented, till the Matter sink to the bottom, which will become as it were an Oil: Afterward pour it into a somewhat thick and hot Mould, and it will coagulate, so as to be fit for use, if it be kept in a well-stop'd Vial. This Cantery is the best; and an Ounce of Silver will yield one Ounce and five Drams of *Lapis infernalis*.

What is a Seton?

It is a String of Silk, Thread or Cotton, threaded through a kind of Pack-Needle, with which the Skin of a Part is to be pierc'd thro', to make an Ulcer therein, that hath almost the same Effect as a Caутery.

What is most remarkable in the Application of a Seton?

It ought to be observ'd, that the String must be dipt in Oil of Roses, and that one end of it must always be kept longer than the other, to facilitate the running of the Humours.

In what Parts is the Seton to be apply'd?

The Nape of the Neck is the usual Place of its Application, altho' it may be made in any Part of the Body where it is necessary. It sometimes happens that a Surgeon is oblig'd to use a kind of Seton in such Wounds made with a Sword, or by Gun-shot, as pass quite thro',

thro' from one side to the other ; then the String or Skain must be dipt in convenient Ointments or Medicinal Compositions ; and as often as the Dressings are taken away, it will be requisite to cut off the Part soak'd in the purulent Matter, which must be taken out of the Ulcer.

What is a Cupping-Glass ?

It is a Vessel or kind of Vial, made with Glass, the bottom whereof is somewhat broader than the top, which is apply'd to the Skin, to cause an Attraction. There are two sorts of these Cupping-Glasses, viz. the Dry and the Wet ; the former are those that are laid upon the Skin without opening it ; and the latter those that are apply'd with scarification.

In what Diseases are Cupping-Glasses us'd ?

In all kinds where it is necessary to make any Attraction ; but more especially in Apoplexies, Vapours in Women, Palsies, and other Distempers of the like Nature. But the Applications of Cupping-Glasses are altogether different ; for in Apoplexies, they are generally set upon the Shoulders, or upon the Coccyx ; in Vapours upon the Inside of the Thighs ; and in Palsies, upon the Paralytick Part it self.

What is a Leech ?

It is an Animal like a little Worm which sucks the Blood, and is commonly apply'd to Children and weak Persons, to serve instead of Phlebotomy : Leeches are also us'd for the discharging of a Defluxion of Humours in any Part ; as also in the Hemorrhoidal Veins, when they are too full ; in the Varices, and in several Parts of the Face.

What choice ought to be made of Leeches?

It is requisite to take those that have their Backs greenish, and their Bellies red; as also to seek for them in a clear running Stream, and to cast away those that are black and hairy.

CHAP. VI.

Of Phlebotomy.

WHAT is Phlebotomy?

It is an Evacuation of Blood procur'd by the artificial Incision of a Vein or Artery, with design to restore Health.

Which are the Vessels that are open'd in Phlebotomy or Blood-letting?

They are in general all the Veins and Arteries of the Body, nevertheless some of them are more especially appropriated to this Operation; as the *Vena Preparatoria* in the Forehead; the *Ranula* under the Tongue; the Jugular Veins and Arteries in the Neck; the Temporal Arteries in the Temples; the *Cephalick*, *Median* and *Basilick* Veins in the inside of the Elbow; the *Salvatella* between the Ring Finger and the Little Finger; the *Poplitea* in the Ham; the *Saphena* in the internal Malleolus or Ankle, and the *Ischiatica* in the external.

What are the Conditions requisite in the due performing of the Operation of Phlebotomy?

They are these, viz. to make choice of a proper Vessel; not to open any at all Adventures; not to let Blood without necessity, nor with-

without the Advice of a Physician ; whose Office it is to determine the Seasons or Times convenient for that purpose ; as that of Intermission in an intermitting Fever ; that of Cooling in the Summer ; and that of Noon-tide in the Winter ; and lastly, to take away different Quantities of Blood ; for in the Heat of Summer they ought to be lesser, and greater in the Winter.

What are the Accidents of Phlebotomy ?

They are an Impostume, a *Thrombus*, an *Echy-
mosis*, an *Aneurism*, *Lipothymy*, *Swooning*, and
a *Convulsion*.

What is a Thrombus ?

It is a small Tumour of the Blood which happens in the Place where the Operation is perform'd, either by making the Orifice too small, or larger than the Capaciousness of the Vessels will admit. The *Thrombus* is cur'd by laying upon it a Compress dipt in fair Water, between the Folds of which must be put a little Salt, to dissolve and prevent the Suppuration.

How may it be perceiv'd that an Artery hath been prick'd or open'd in letting Blood ?

The Puncture of an Artery produceth an *Aneurism* ; and the opening of it causeth a Flux of a bright Scarlet colour'd Blood, which issueth forth in abundance, and by Leaps.

Are the Leaps which the Blood makes in running, a certain Sign that it comes from an Artery ?

No, because it may so happen, that the *Basilick Vein* lies directly upon an Artery, the beating of which may cause the Blood of the

Basilica to run out leaping: Therefore these Three Circumstances ought to be consider'd jointly; that is to say, the Vermillion Colour, the great Quantity and the Leaps, in order to be assured that the Blood proceeds from an Artery.

How may it be discover'd that a Tendon hath been hurt in letting Blood?

It is known when in opening the *Median Vein* the End of the Lancet hath met with some Resistance; when the Patient hath felt great Pain, and afterward when the Tendon apparently begins to be puff'd up, and the Arm to swell. A Remedy may be apply'd to this Accident thus; after having finished the Operation, a Bolster steep'd in *Oxycraturum* is to be laid upon the Vessel, a proper Bandage is to be made, and the Arm must be wrapt up in a Scarf: If the Inflammation that ariseth in the Part, be follow'd with Suppuration, it must be dress'd with a small Tent; and if the Suppuration be considerable, it is necessary to dilate the Wound, and to make use of Oil of Eggs and Brandy, or *Arcæus's* Liniment, with a good Digestive; as also to apply *Emplastrum Ceratum*; to make an Embrocation on the Arm with Oil of Roses; and to dip the Bolsters in *Oxycraturum* to cover the whole Part.

Is it not to be fear'd that some Nerve may be wounded in letting Blood?

No, they lie so deep that they cannot be touch'd.

Under what Vein is the Artery of the Arm?

It is usually situated under the *Basilica*.

What

What Course is proper to be taken to avoid the Puncture of an Artery in letting Blood?

It must be felt with the Hand before the Ligature is made, observing well whether it be deep or superficial; for when it lies deep, there is nothing to be fear'd; and when it is superficial it may be easily avoided by pricking the Vein either higher or lower.

What is to be done when an Artery is opened?

If it be well open'd, it is requisite to let the Blood run out till the Person falls into a Syncope or Swoon, by which means the Aneurism is prevented; and afterward the Blood will be more easily stopp'd: It remains only to make a good Bandage with many Bolsters, in the first of which is simply put a Counter or a Piece of Money; but a bit of Paper chew'd will serve much better, with Bolsters laid upon it in several Folds.

If the Arteries cause so much trouble when opened accidentally, why are those of the Temples sometimes open'd on purpose, to assuage violent Pains in the Head.

By reason that in this Place the Arteries are situate upon the Bones that press them behind; which very much facilitates their Re-union.

Are not the Arteries of Persons advanc'd in Years more difficult to be clos'd than those of Children?

Yes.

Are not Accidents to be fear'd in letting Blood in the Foot ?

Much less than in the Arm ; because the Veins of the *Malleoli* or Ankles are not accompany'd either with Arteries or Tendons ; which gave Occasion to the Saying, *Let the Apprentice bleed you in the Foot, but the Master in the Arm.*

A

TREATISE

O F

Chirurgical Operations.

CHAP. I.

Of the Operation of the Trepan.

THIS Operation is to be perform'd, when it is inferr'd from the Signs, of which we have already given a particular Account, that there is an Effusion of Matter on the *Dura Mater*. The Trepan must not be us'd in the *Sinus Superciliares*, by reason of their Cavity; nor in the Sutures, in regard of the Vessels that pass thro' them; nor in the Temporal Bone without great necessity, especially in that part of it which is join'd to the Parietal Bone, lest the End of this Bone should fly out of its Place, since it is only laid upon the Parietal; nor in the middle of the Coronal and Occipital Bones, by reason of an inner

Prominence wherein they adhere to the *Dura Mater*; nor in the Passage of the Lateral *Sinus's*, that are situated on the side of the Occipital.

If the Fissure be very small, the Trepan may be apply'd upon it, altho' it is more expedient to use this Instrument on the side of the Fissure in the lower part; neither is the Trepan to be set upon any Depressions; and if the Bones are loosen'd or separated, there needs no other trepanning than to take them away with the Elevatory.

The Operation must be begun with Incision, which is usually made in form of a Cross, if the Wound be remote from the Sutures, and there are no Muscles to be cut, and in the shape of the Letter T, or of the Figure 7, if it be near the Sutures, so that the Foot of the 7, or of the T, ought to be parallel to the Suture, the top of the Letter descending toward the Temples; it is also made in the middle of the Forehead. If it be sufficient to make a longitudinal Incision in the Forehead, its Wrinkles may be follow'd, and there will be less Deformity in the Scar; but it is never done cross-wise in this Part, and the Lips of the Wound are not to be cut. If an Incision be made on the Temporal Muscle, and on those of the back-part of the Head, it may be done in form of the Letter V, the Point of which must stand at the bottom of the Muscles; nevertheless it is more convenient to make a longitudinal Incision, by which means fewer Fibres will be cut; and it is always requisite to begin at the lower part, to avoid being hindred by the Hæmorrhage.

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The Incisions are to be made with the Incision-Knife, and that boldly when there are no Depressions; but if there be any, too much weight must not be laid on them. Thus the Incision being finish'd, the Lips of the Wound must be separated from the Skull, either with the Fingers, or some convenient Instrument: Then if there be no urgent occasion to apply the Trepan, it may be deserr'd till the next Day, the Wound being dress'd in the mean time with Plaisters, Compresses, Pledgits, and a large Kerchief or Cap, the use of which we shall shew hereafter,

The Operation is begun with the Perforative, to make a little Hole for the fixing of the Pyramid or Pin which is in the Crown; afterward the Crown is to be apply'd, holding the Handle of the Trepan with the Left Hand, and turning with the other very fast in the beginning; but when the Crown hath made its way, it is lifted up to remove the Pin, lest its Point should hurt the *Dura Mater*: Thus the Crown being taken off from time to time, to be cleans'd from the Filings, it is set on again, and the Operator begins his Work of turning anew, which must be carry'd on gently when any Blood appears, that the piece of Bone of the first Table may not be broken off from the second. When he comes near the *Dura Mater*, the Operator must proceed, in like manner, gently searching with a Quill, cut into a Knib, like a Pen for Writing, round about the Bone, to observe whether he still be in the Skull. He must also often lift up the Trepan to search the Hole, to cleanse the Instrument, and to keep it from growing

hot. As often as the Trepan is taken off, let him search with a Feather, to see whether the Bone be cut equally; and if it be not, he must lean more on that side which is least cut. If it be necessary to make use of the *Terebellum*, the Hole must be made in the beginning whilst the Bone is as yet firm; and when the Piece begins to move, the *Terebellum* is to be put very gently into its Hole, without pressing the Bone to draw it out; or else it may be taken away with the Myrtle-Leaf. When the Piece is thus remov'd, the uneven Parts that remain at the bottom of the Hole, are to be cut with the *Scalper Lenticularis* or Lenticular Instrument; and if there be any Depressions, they may be rais'd with the Elevatory. Whereupon the *Dura Mater* may be compress'd a little with the *Scalper Lenticularis*, to facilitate the running out of the Blood, the wounded Person being oblig'd to stoop with his Head downward, stopping his Nose and Mouth, and holding his Breath for a while whilst it is evacuated. Then the *Dura Mater* may be wip'd with Lint; but if any Pus or corrupt Matter lies underneath, it must be pierc'd with a Lancet wrapt up in a Tent, that it may not be perceiv'd by the Assistants. Afterward a *Sindon* or very fine Linen Rag dipt in a proper Medicament, is put between the *Dura Mater* and the Skull; the Hole is fill'd with small Pledgits steep'd in Medicinal Liquors; and the Wound is dress'd with Pledgits, a Plaister, and a Kerchief.

But the Hole ought to be well stop't with Pledgits, because the *Dura Mater* is sometimes so much inflam'd that it bursts forth. If any Excrescences arise therein, and go out of the Hole, having small Roots, they may be bound and cut; but if their Roots be large, they must be press'd close with small Pledgits steep'd in Spiritous Medicines. Here observe, that the Operation of the Trepan ought to be perform'd more gently in Children than in adult Persons, in regard that their Bones are more tender; and that Oily Medicines must not be us'd, but Spirituous. The Exfoliation is made sometimes sooner, and sometimes later; but the *Callus* usually covers the opening of the Skull within the Space of forty or fifty Days, if no ill Accident happens. In great Fractures, where there is no longer any Connexion between the Bones, it is requisite to take 'em away.

Of the Bandage of the Trepan.

The proper Bandage to be us'd after the Operation of the Trepan, is the great Kerchief or Cap, which is a large Napkin folded into two parts after such a manner that the side which toucheth the Head exceeds that which doth not touch it in the breadth of four Fingers; it is apply'd to the Head in the middle, whilst a Servant holds on the Dressing with his Hand: Then the two upper ends of the Napkin being brought under the Chin, the Surgeon takes the two lower, and draws them strait by the sides, so as that side of the Napkin, which is four Fingers broad-

broader than the other, may be laid upon the Forehead ; Afterward the two ends of the Napkin are cross'd behind the Head, and fastned at their Extremities with Pins, without making any Folds that might hurt the Part ; but the ends of the Napkin which fall upon the Shoulders, are rais'd up to the Head near the lesser Corner of the Eyes ; and the two ends under the Chin are fastned with Pins, or else ty'd in a Knot.

C H A P. II.

Of the Operation of the Fistula Lachrymalis.

THIS Operation is perform'd when there is a Fistulous Ulcer in the great Corner of the Eye, after this manner : The Patient being plac'd in a convenient Posture, and having his sound Eye bound up, to take away the Sight of the Instruments ; the Operator causeth the other Eye to be kept steady by a Compress kept on by a Spoon, and makes an Incision with a Lancet, in form of a Crescent, upon the Tumour, taking care to avoid cutting the Eye-Lid and the little Cartilage which serves as a Pulley to the great Oblique Muscle. If the Bone be carious, an Actual Cautery may be apply'd thereto, using for that purpose a small Funnel or Tube, through the Canal of which the Cautery is convey'd to the Bone. But the Bone must not be

be pierc'd, for it is exfoliated entire by reason of its smallness; and so the Hole is made without any Perforation.

The Dressing and Bandage of the Fistula Lachrymalis.

The Wound is fill'd with small dry Pledgits, and cover'd with a Plaister and Compress: The Bandage is made with an Handkerchief folded triangular-wise; the ends of which are fastned behind the Head. If the Flesh grows too fast, it may be consum'd with the Lunar Caustick; and if there be occasion to dilate the Wound, to facilitate the Exfoliation, it may be done with little pieces of Sponge prepar'd, and put into it. Afterward Causticks are to be us'd to eat away the Callous Parts, which may be mingl'd with Oily Medicines, to weaken their Action; taking care, nevertheless, that the Eye receive no damage by them. If the Bone be corrupted, a little *Euphorbium* may be apply'd; or else small Pledgits steep'd in the Tincture of Myrrh and Aloes; and the Ulcer may be treated as all others.

C H A P.

C H A P. III.

Of the Operation of the Cataract.

THIS Operation is perform'd when there is a small Body before the Pupil of the Eye, which hinders the Sight from entering into it; but it is undertaken only in Blue, Green, and Pearl-colour'd Cataracts, or in those that are of the Colour of polish'd Steel; and not in Yellow, Black, or Lead-colour'd. To know whether the Cataract be fit to be couch'd, the Patient's Eye must be rubb'd; so that if the Cataract remains unmoveable, it is mature enough; but if it changeth its Place, it is requisite to wait till it become more solid. The Spring and Autumn are the most proper Seasons for performing the Operation.

To this purpose the Patient being set down with his Eyes turn'd toward the Light, and having his Sound Eye bound up, the Surgeon must likewise sit on a higher Seat, whilst the Patient's Head is held by a Servant; and his Eye being turn'd toward his Nose, is kept steady with a *Speculum Oculi*, which is a little Steel Instrument made like a Spoon, pierc'd in the middle, so that the Ball of the Eye may be let through the Hole: Then the Surgeon taking a Steel Needle, either round or flat, accordingly as he shall judge convenient, perforates the Conjunctive at the end of the Corneous Tunicle, on the side of the little Corner

ner of the Eye, and boldly thrusts his Needle into the middle of the Cataract, which he at first pusheth upward, to loosen it with the Point of the Needle; and then downward, keeping it for some time with his Needle under the Pupil of the Eye. If it ascend again after it is let go, it must be depressed a second time; but the Operation is finish'd, when it remains in the same place whereto it was thrust: Neither is the Needle to be remov'd till all this be done, and the Cataract entirely couch'd. In taking out the Needle, the Eye-Lid must be pull'd down, and press'd a little over the Eye.

The Dressing and Bandage.

Is to cause both the Patient's Eyes to be clos'd and bound up; then he must be oblig'd to keep his Bed during seven or eight Days, and some Defensative is to be laid upon the sore Eye, to hinder the Inflammation.

M. Dupré, a Surgeon of the *Hotel Dieu*, a Person very eminent in these kind of Operations, hath observ'd, that as some Cataracts were form'd in a very little space of time in perfect Maturity; it hapned also very often, that the Cataracts which were suppos'd to have got up again, were not the very same with those that were couch'd, but rather a new *Pellicula* or little Skin, which sometimes hath its Origin in the top of the *Uveous Tunicle*, and is caus'd only by a very considerable Relaxation of the Excretory Vessels from the Sources of the Aqueous Humour, which in filtrating permits the running off

off of many heterogeneous Parts, the Encrease of which produceth a new Cataract.

Of other Operations in the Eyes

Sometimes a sort of Purulent Matter is gathered together under the Corneous Tunicle; to let this out, the Eye must be fix'd in a Posture with the *Speculum Oculi*, and after a small Incision made therein with a fine Lancet, it must be prest a little to discharge the Matter; but if it be too thick, it may be drawn forth by sucking gently with a small Tube or Pipe, having a little Vial in the middle, into which the Matter will fall as it is suck'd out.

Sometimes a small Tumour ariseth in the Eye which being ty'd at its Root with a Slip-Knot, to straighten it from time to time, will at length fall off: But if the Tumour lie in the Hole of the Pupil, this Operation must not be admitted, lest the Scar should hinder the Passage of the Light. Sometimes also a somewhat hard Membrane, call'd *Unguis*, appears in the great Corner of the Eye, which, when it sticks thereto, may be cut off by binding it; this is done with a Needle and Thread, which is pass'd thro' the Membrane, and afterward ty'd

If the Eye Lids are glu'd together, a crook'd Needle without a Point may be threaded, and pass'd underneath them; then the Ends of the Thread may be drawn, to lift up the Eye-Lids, and they may be separated with a Lancet.

If the Hairs of the Eye-Lids or Eye-Brows offend the Eye, they must be pull'd out with a Pair

Pair of Tweezers or Nippers ; and when any small, hard, and transparent Tumours arise in the Eye-Lids, they are to be open'd, to let out the corrupt Matter.

CHAP. II.

Of the Operation of the Polypus.

THIS Operation is necessary, when there are any Excrescences of Flesh in the Nostrils, which, nevertheless, when they are livid, stinking, hard, painful, and adhere closely, must not be tamper'd with, because they are Cancers. But if they are whitish, red, pendulous, and free from Pain, the Cure may be undertaken after this manner : Take hold of the *Polypus* with a Pair of *Forceps*, as near its Root as is possible, and turn it first on one side, and then on another, till it be pull'd off. If the *Polypus* descends into the Throat, it may be drawn thro' the Mouth with a crooked *Forceps* ; and if an Hæmorrhage should happen after the Operation, it may be stop'd by thrusting up into the Nostrils certain Tents soaked in some styprick Liquor ; or else by syringing with the same Liquor.

CHAP.

C H A P. V.

Of the Operation of the Hare-Lip.

THIS Operation is perform'd when the upper Lip is cleft ; but if there be a great Loss of Substance, it must not be undertaken ; neither ought it to be practis'd upon old nor scorbutick Persons, nor upon young Children, by reason that their continual Crying would hinder the Re-union. But if any are desirous that it should be done to these last, they are to be kept from taking any Rest for a long time, to the end that they may fall asleep after the Operation, which is thus effected :

If the Lip sticks to the Gums, it is to be separated with an Incision-Knife, without hurting them ; then the Hare-Lip must be cut a little about the Edges with Scissars, that it may more easily re-unite, the Edges being held for that purpose with a Pair of Pincers, whilst the Servant who supports the Patient's Head, presseth his Cheeks forwards to bring together the sides of the Hare-Lip. Then let the Operator pass a Needle with wax'd Thread into the two Lips of the Wound, from the outside to the inside, a Hairs-breadth from their Edges. Here Care must be had that the two sides of the Hare-Lip be well adjusted, and very even. Lastly, let him twist the Thread round the Needle by crossing it above.

The Dressing and Bandage.

After the Lips are wash'd with warm Wine, the Points of the Needle must be cut off, small Bolsters being laid under their Ends; then the Wound is to be drest with a little Pledgit arm'd with some proper Balsam, putting at the same time under the Gum a Linen Rag steep'd in some desiccative Liquor, lest the Lip should stick to the Gum, if it be necessary to keep 'em apart. Lastly, upon the Hole is to be laid an agglutinative Plaister, which must be kept on with the uniting Bandage.

This is a small Filler perforated in the middle. Put this behind the Head, bring one End forward, pass it thro' the Hole in the middle, lay this part in the Wound, then bring the two Tails behind the Head, and passing them over the first Turns, fasten them there with a sufficient Number of Pins.

The Patient must be drest three Days after; and it is requisite at the first time only to untwist half the Needle, loosning the middle Thread if there be three; to which purpose a Servant is to thrust the Cheeks somewhat forward. On the eighth Day the middle Needle may be taken off, if it be a young Infant; nevertheless the Needles must not be remov'd till it appear that the Sides are well join'd; neither must they be left too long, because the Holes would scarce be brought to close.

C H A P. VI.

Of the Operation of Bronchotomy.

THIS Operation becomes necessary, when the Inflammation that happens in the *Larynx* hinders Respiration, and is perform'd after this manner :

The Wind-pipe is open'd between the third and fourth Ring, above the *Cricoides* Cartilage, or else in the middle of the Wind-pipe ; but in separating the Muscles call'd *Sternohyoides*, care must be had to avoid cutting the recurrent Nerves, lest the Voice should be lost ; as also the Glandules, named *Thyroideæ*. The space between the Rings is to be open'd with a slender Lancet, bound round with a little Tape, and a transverse Incision made between them : Before the Lancet is taken out, put a Probe into the Orifice, on which pass a little Pipe, short, flat, and somewhat crooked at the end, which must not be thrust in too far, for fear of exciting a Cough. This Pipe hath two small Rings for the fastning of Ribbons, which are ty'd round about the Neck ; and must be left in the Wound till the Symptoms cease. After that it must be taken away, and the Wound dress'd, the Lips of it being brought together with the uniting Bandage, which hath been already describ'd.

C H A P. VII.

Of the Operation of the Uvula.

WHEN the *Uvula* is swell'd so as to hinder Respiration or Swallowing, or else is Gangren'd, it may be extirpated thus : The Tongue being first depress'd with an Instrument call'd *Speculum Oris*, this must be held with a *Forceps*, and cut off with a Pair of Scissars ; or else a Ligature may be made before it is cut ; and the Mouth may be afterward gargl'd with Astringent Liquors.

C H A P. VIII.

Of the Operation of a Cancer in the Breast.

THE Cancer at first is not so big as a Pea, being a small, hard, ill colour'd Swelling, sometimes livid, and very troublesome by reason of its Prickings ; but when it is increas'd, the Tumour appears hard, Lead-colour'd and livid, causing in the Beginning a Pain that may be pretty well endur'd ; but in the Increase it grows intolerable, and the Stink is extremely noisome. When it is ready to ulcerate, the Heat is vehement, with a pricking Pulsation, and the Veins round about are Turgid, being
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fill'd with black Blood, and extended as it were the Feet of a Crab or Crey-Fish, till Death happen. When this Tumour is not ulcerated, it is call'd an *Occult Cancer*; and an *Apparent* one, when it breaks forth into an open Ulcer.

To palliate an *Occult Cancer*, and prevent its Ulceration, a Cataplasm or Pultis of Hemlock, very fresh, may be apply'd to the Part. All the kinds of Succory, the Decoction of *Solanum* or Night-shade; the Juices of these Plants, as also those of Scabious, *Geranium*, or Storks-Bill, *Herniaria*, or Rupture-wort, Plantain, &c. are very good in the beginning. River Crabs pounded in a Leaden Mortar, and their Juice beaten in a like Mortar, are an excellent Remedy; as also are Humane Excrements, or Urine distill'd, and laid upon the Part: Or else,

Take an Ounce of Calcin'd Lead, two Ounces of Oil of Roses, and six Drams of Saffron; let the whole Composition be beaten in a Mortar with a Leaden Pestle, and apply'd. The *Amalgama* of Mercury with Saturn is likewise a very efficacious Remedy.

In the mean while the Patient may be purg'd with *Black Hellebore* and *Mercurius Dulcis*, taking also inwardly from one Scruple to half a Dram of the Powder of Earth-worms, given to drink, with half the Quantity of Crabs-Eyes: But very great Care must be taken to avoid the Application of Maturatives or Emollients, which would certainly bring the Tumour to Ulceration.

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When the Cancer is already ulcerated, the Spirit of Soot may be us'd with good success; and the Oil of Sea-Crabs pour'd scalding hot into the Ulcer, is an excellent Remedy. But if it be judg'd expedient entirely to extirpate the Cancer, it may be done thus:

The Patient being laid in Bed, let the Surgeon take the Arm on the side of the Cancer, and raising it, and bringing it back to give scope to the Swelling; then having pass'd a Needle with a very strong Thread through the bottom of the Breast, let him cut the Thread, take away the Needle, and passing the Needle again into the Breast, cause the Threads to cross one another. Next, these four Ends of the Threads must be ty'd together, to make a kind of Hold to take off the Tumour, which is cut quite round to the Ribs with a very sharp Razor. The Cutting is usually begun in the lower Part, that so it may end in the Vessels near the Arm-pit, where a small piece of Flesh is left to stop the Blood with greater Facility: Then having laid a Piece of Vitriol upon the Vessels, or Bolsters soak'd in styptick Water; the sides of the Breast must be prest with the Hand, to let out the Blood and Humours; and an actual Cautery is to be lightly apply'd thereto.

The Dressing.

The Wound is to be dress'd with Pledgits strew'd with Astringent Powders, a Plaister, a
Ccm-

Compress, a Napkin round the Breast, and a Scapulary to support the whole Bandage.

But instead of these cross Threads, it is better to make use of a sort of *Forceps* turn'd at both Ends in form of a Crescent, after such a manner that those Ends may pass one over another, when the *Forceps* is shut. Thus the Surgeon may lay hold on the Breast, draw it to him, and after cut it off at one single Stroke with a very flat, crooked, and sharp Knife. Neither is it convenient to apply the Actual Cautery to stop the Hemorrhage, because it is apt to break forth again anew, when the Escar is fallen off.

When the Tumour is not as yet ulcerated, a Crucial Incision may be made in the Skin, without penetrating into the Glandulous Bodies: Then the four Flaps being separated and rais'd, the Cancerous Tumour may be held with the *Forceps* and cut off. If there be any Vessels swell'd they may be bound before the Tumour is taken away; but if the Tumour sticks close to the Ribs, the Operation is not usually undertaken.

C H A P. IX.

Of the Operation of the Empyema.

THIS Operation is perform'd when it may be reasonably concluded that some corrupt Matter is lodg'd in the Breast, which may be perceiv'd by the Weight that the Patient feels in fetching his Breath; being also sensible of the floating of the Matter when he turns himself from one side to another.

If the Tumour appears on the Outside, the Abscess may be open'd between the Ribs; but if no external Signs are discern'd, the Surgeon may choose a more convenient Place to make the Opening. Thus when the Patient is set upon his Bed, and conveniently supported, the Opening is to be made between the second and third of the Spurious Ribs, within four Fingers breadth of the Spine, and the lower Corner of the *Scapula*; to this purpose the Skin is to be cut up a-cross, to cut it in its length, the Surgeon holding it on one side, and the Assistant on the other. The Incision is made with a straight Knife two or three Fingers breadth long, and the Fibres of the great Dorsal Muscle are cut a-cross, that they may not stop the Opening. Then the Surgeon puts the Fore-Finger of his Left-Hand into the Incision, to remove the Fibres, and divides the Intercoastal Muscles, guiding the Point of the Knife with his Finger, while he perforates the *Pleura*, for fear of wounding the Lungs, which sometimes

adhere thereto : The Orifice being thus made, if the Matter runs well, it must be let out, but if not, the Fore-Finger must be put into the Wound to disjoin those Parts of the Lungs that adhere to the *Pleura*.

To let out the Matter, the Patient must be oblig'd to lean on one side, stopping his Mouth and Nose, and puffing up his Cheeks, as if he were to blow vehemently ; then if Blood appears, a greater Quantity of it may be taken away than if it were Matter, in regard that a Flux of Matter weakens more than that of Blood. It is also worth the while to observe, that in making the Incision, the Intercostal Muscles ought to be cut a-cross, that the side of the Ribs may not be laid bare, by which means the Wound will not so soon become Fistulous.

If it be judg'd that purulent Matter is contain'd in both sides of the Breast, it is requisite that the Operation be made on each side ; it being well known that the Breast is divided into two Parts by the *Mediastinum* : But in this case the two Holes made by the Incision must not be left open at the same time, for fear of suffocating the Patient.

The Dressing and Bandage.

The Wound is dress'd with a Tent of Rag roll'd up, arm'd with some Balsam. This must be soft, and blunt at the End, and enter only between the Ribs for fear of hurting the Lungs ; but a good Dossil of Lint is more convenient than a Tent ; however, a Thread must by ty'd to

either of them, lest it should fall into the Breast; Pledgirs must be put into the Wound, and a good Plaister and Compress over all. This Dressing is to be kept on with a Napkin fastned round the Breast with Pins, and supported by a Scapulary. This is a sort of Band about four Inches broad, having a Hole in the middle to let in the Head: One of its Ends falls behind and the other before; and they are both fastned to the Napkin. Lastly, the Patient must be laid in Bed, and set half upright. If the Lungs hinder the running out of the Matter, a Pipe must be put in, and the Wound afterward dress'd according to Art.

CH A P. X.

Of the Operation of the Paracentesis of the lower Belly.

THIS Manual Operation is sometimes necessary in a Dropsie, when Watry Humours are contain'd in the Cavity of the Belly, or else between the Teguments. The Disease is manifest by the great Swelling; and the Operation is perform'd with the *Trocar*, which is a Cane or a Pipe, made of Silver or Steel, with a Bodkin sharp-pointed at the End in it; altho' the Ancients were wont to do it with a Lancet. The Patient being supported, sitting on a Bed, or in a great Elbow Chair, to the end that the Water may run downward,

a Servant must press the Belly with his Hands, that the Tumour may be extended, whilst the Surgeon perforates it three or four Fingers breadth below the Navel, and makes the Puncture on the side, to avoid the White-Line; but before the Opening is made, it is expedient that the Skin be a little rais'd up. After the Puncture the Bodkin or Wire is remov'd to let out the Water; and a convenient quantity of it is taken away, accordingly as the Strength of the Patient will admit. This makes so small an Orifice, that it is not to be fear'd lest the Water should run out, which might happen in making use of the Lancet, because there would be occasion for a thicker Pipe. When a new Puncture is requisite, it must be made beneath the former; but if the Waters cause the Navel to strut out, the Aperture may be made there, without seeking for any other place.

The Dressing and Bandage

Are made with a large Compress in four doubles kept on with a Napkin folded into three or four Leaves; and this is supported by the Scapulary.

The Operation of the Peracentesis of the Scrotum

Is undertaken when those Parts are distended with Water, after this manner: As soon as the Patient is plac'd in a convenient Posture, either standing or sitting, the Operator lays hold on the

the *Scrotum* with one Hand, presseth it a little to render the Tumour hard, and makes a Puncture, as in the *Paracentesis* of the *Abdomen*. In an *Hydrocele* that happens to young Infants, the Puncture may be made with a Lancer, to let out all the Water at once : But in Men, especially when there is a great quantity thereof, it is better to do it with the *Trocar* or sharp pointed Pipe ; but the Testicles must be drawn back, for fear of wounding 'em with the Point of the Instrument.

If you judge the *Hydrocele* to be included in a Bag, the Membrane containing the Water is to be consum'd with Causticks, which is done by laying a Cautery in the place where the Incision should be made, and afterw^{ard} opening the Escar with a Lancer.

When the Puncture is made, it ought to be done in the upper part of the *Scrotum*, because it is less painful than the lower, and less subject to Inflammation.

C H A P. XI.

Of the Operation of Gastrography.

THIS Operation is usually perform'd when there is a Wound in the Belly so wide as to let out the Guts. If there be a considerable Wound in the Intestine, it may be sew'd up with the Glover's Stitch ; the manner of making which we have before explain'd. If the

Omentum or *Caul* be mortify'd, the corrupted Part must be cut off; for which purpose take a Needle with wax'd Thread, and pass it into the sound Part a-cross the *Caul*, without pricking the Vessels. Then the *Caul* being ty'd on both sides with each of the Threads that have been pass'd double, may be cut an Inch below the Ligature, and the Threads will go thro' the Wound, and be ejected by the Suppuration. Next the Intestines must be put up again into the Belly, by thrusting them successively with the end of the Fingers. But if they cannot be restor'd to their proper place without much difficulty, Spirituous Fomentations may be made with a handful of the Flowers of Camomile and Melilot, an Ounce of Aniseeds, with as much Fennel and Cummin-seeds; half an Ounce of Cloves and Nutmegs: Let them be boil'd in Milk, adding an Ounce of Camphorated Spirit of Wine, and two Drams of *Saccharum Saturni*, with two Scruples of Oil of Aniseed, and bathe the Guts with this Fomentation very hot. Or,

Apply Animals cut open alive; or else boil Skeins of raw Thread in Milk, and foment them with this Decoction in like manner very hot.

Before the Suture or Stitching of the Guts, foment them with Spirit of Wine, in which a little Camphire hath been dissolv'd. But if they be mortify'd, they must not be sown up again, but fomented with Spirituous Liquors. No Clysters are to be given to the Patient, for fear of causing the Guts to swell; but a Suppository may be put up: Or the Patient may use a Laxative Diet-Drink,

Drink, if it be necessary to open his Body : He ought also to be very temperate and abstemious during the Cure, and take no other Sustenance than Broths and Gellies.

If the Intestines cannot be put up again, the Wound must be dilated, avoiding the White-Line, and that too at the bottom rather than at the top, if it be above. To this purpose, the Intestines are to be rank'd along the side of the Wound, and a Bolster is to be laid upon them dip'd in warm Wine, which may be held by some Assistant. Then the Surgeon introduceth a Director or Channell'd Probe into the Belly, and takes a great deal of care to fix the Intestine between the Probe and the *Peritonæum*, which may be effected by drawing out the intestine a little ; then holding the Probe with his Left-Hand, to fix a crooked Incision-Knife in its channelling, he cuts the Teguments equally both on the outside and within, and thrusts back the Entrails alternately into the Wound with his Fore-Finger.

The Stirch must be intermitted, being made with two crooked Needles threaded at each end with the same Thread. The Surgeon having at first put the Fore-Finger of his Left-Hand into the Belly, to retain the *Peritonæum*, Muscles, and Skin on the side of the Wound, must pass the Needle with his other Hand into the Belly, the Point of which is guided with the Fore-Finger, and penetrates very far : Then he likewise passeth the other Needle through the other Lip of the Wound into the Belly, observing the same thing as in the former, and without taking his Fingers off from

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the Belly. If there are many Points or Stitches to be made, they may be done after the same manner, without removing the Fingers from the Part, whilst a Servant draws together the Lips of the Wound, and ties the Knots. Afterward the Wound may be dress'd, and the Preparatives or Dressings kept close on the Part with the Napkin and Scapulary. But the Patient must be oblig'd to lie on his Belly for some Days successively, to cicatrize the Wound thereof, or that of the Guts.

If the Intestine were entirely cut, it would be requisite to sew it up round about the Wound, after such a manner that some part of it may always remain open; for if the Patient should recover, his Excrements might be voided through the Wound: Of which Accident we have an Example in a Soldier belonging to the Hospital *Des invalides* at *Paris*, who liv'd a long time in this Condition.

C H A P. XII.

Of the Operation of the Exomphalus.

THIS Operation is necessary when the Intestines or Guts have made a kind of Rupture in the Navel, and may be perform'd thus: When the Patient is laid upon his Back, let an Incision be made on the Tumour quite to the Fat, by griping the Skin, if it can be, if not it may be done without it. Then let the

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Membranes be divided with a Fleam to lay open the *Peritoneum*, for fear of cutting the Gut; and as soon as the *Peritoneum* appears, let it be drawn upward with the Nails, in order to make a small Opening therein with a Knife. And now the Surgeon having put the Fore-Finger of his Left-Hand into the Belly to guide the Point of the Scissars, with which the Incision is enlarged, let him restore the Gut to its proper place, and loosen the Caul if it stick to the Tumour: if the Guts are fasten'd to the Caul, it is necessary to separate 'em by cutting a little of the Caul, rather than the Gut; which last being reduc'd, let a Servant press the Belly on the Edge of the Wound. If there be a Carnosity in the Caul, form'd by its Adhesion to the Muscles and *Peritoneum*, this Fleshy Mass must be entirely loosen'd, and a Ligature made to take it away, with part of the Caul, as we have already shewn in the *Gastrography*. Afterward the the Stitch is to be made, as in that Operation, and the Wound must be dress'd, observing the same Precautions. The Dressing is to be supported in like manner with the Napkin and Scapulary.

C H A P. XIII.

*Of the Operation of the Bubonocoele,
and of the compleat Rupture.*

WHEN the Intestinal Parts are fall'n into the Groin or the Scrotum, the Operation of the *Bubonocoele* is to be perform'd : In order to this, let the Patient be laid on his Back, with his Buttocks somewhat high ; then stripping the Skin a-cross the Tumour, let the Surgeon hold it on one side, and the Assistant on the other, till he makes an Incision, following the Bending of the Groin ; when the Fat appears, let him tear off either with a Fleam, or with his Nails, every thing that lies in the way, till the Gut be laid open, which must be drawn out a little, to see if it do not cleave to the Rings of the Muscle. The Gut must be gently handled to dissolve the Excrements ; and those Parts must be afterward put again into the Belly (if it be possible) with the two Fore-Fingers ; thrusting 'em alternatively ; but if they cannot be reduc'd, the Wound must be dilated upward, by introducing a Director into the Belly, which by its Channel guides the Point of the Scissars, and prevents their hurting the Part. If the Probe cannot enter, the Intestine must be taken out a little, laying your Finger upon it near the Ring, and making a small Scarification in the Ring, with a straight Incision-Knife, guided with the Fin-

Finger, to give way for the Entry of the Director, into which may be put a crooked Knife, to cut the Ring; that is to say, to dilate the Wound on the inside; but care must be had to avoid penetrating too far, for fear of dividing a Branch of Arteries; and then the Parts may be put into the Belly. If the Caul caus'd the Rupture, it would be necessary to tie it, and to cut off what is corrupted, scarifying the Ring on the inside, to make a good Cicatrice or Scar.

The Dressing and Bandage.

The Dressing is made with a Tent of Rags which ought to be soft and blunt at the end, and of a sufficient thickness and length, to hinder the Guts from forcing through the Rings by their Impulsion, a Thread being ty'd thereto, to draw it out as occasion serves. Then Pledgits are to be put into the Wound, after they have been dipt in a good Digestive, such as Turpentine with the Yolk of an Egg, applying at the same time a Plaister, a Compress of a Triangular Figure, and the Bandage call'd *Spica*, which is made much after the same manner, as that in the Fracture of the Clavicle.

Of the compleat Hernia or Rupture.

It happens when the Intestinal Parts fall into the *Scrotum* in Men, or into the Lips of the Womb in Women. To perform this Operation, the Patient must be laid upon his Back, as in the *Bubonocoele*, and the Incision after the same manner;

ner. This must be continu'd into the *Scrotum*, tearing the Membranes till the Gut lie bare. Next it must be examin'd whether any Parts adhere to the Testicle; if the Caul does, it must be taken off, leaving a small Portion on the Testicle; but if it be the Gut, and those Parts cannot be separated without hurting one of them, it is better to take off part of the Testicle than the Intestine. If the Caul be corrupted, it must be cut to the sound Part. In the last place, the Wound must be dress'd with Pledgits, Bolsters, and Bandage *Spica* made as in the *Bubonocoele*.

C H A P. XIV.

Of the Operation of Castration.

THE Mortification, or the *Sarcocoele* of the Testicles, gives occasion for this Operation. To perform it, the Patient must be laid upon his Back, with his Buttocks higher than his Head, his Legs being kept open, and the Skin of the *Scrotum* taken up, one-end of which is to be held by a Servant, and the other by the Surgeon, who having made a longitudinal Incision therein, or from the top to the bottom, must separate the Fleshy Substance of the *Dartos* which covers the Testicle, and tie the Vessels that lie between the Rings and the Tumour, cutting them off a Fingers breadth beneath the Ligature: But care must be taken to avoid binding the Spermatick

matick Vessels too hard, for fear of a Convulsion, and to let one end of the Thread pass without the Wound. If an Excrecence of Flesh stick to the Testicle, and it be moveable or loose, it must be taken off neatly, leaving a small Portion of it on the Testicle; and if any considerable Vessels appear in the Tumour, they must be ty'd before they are cut.

The Dressing and Bandage.

The Dressing is made with Dossils and Pledgits, with which the *Scrotum* is to be; and the proper Bandage is the *Suspensory* or Bag-Truss. It has four Tails, the upper, as a Girth, goes round the Body; and the lower passing between the Thighs, are fastned behind to the Girth.

There is also another Bandage of the *Scrotum*, having in like manner four Tails, of which the upper make the Girth; but it is slit at the bottom and hath no Seams; the lower Tails crossing one another, pass between the Thighs, and are join'd to the Girth. Both these sorts of Bandages have a Hole to give Passage to the Yard.

CHAP.



C H A P. XV.

Of the Operation of the Stone in the Urethra.

IF the Stone be stop'd at the *Sphincter* of the Bladder, it ought to be thrust back with a Probe: If it stick at the end of the *Glans*, it may be press'd to let it out; and if it cannot come forth, a small Incision may be made in the opening of the *Glans* on its side.

But if the Stone be remote from the *Glans*, it is requisite to make an Incision in the *Ureter*; to which purpose, the Surgeon having caus'd the Skin to be drawn upward, must hold the Yard between his two Fingers, making a Longitudinal Incision on its side upon the Stone, which must be press'd between the Fingers to discharge it; or else it may be taken out with an Extractor. Then if the Incision were very small, the Skin needs only to be let go, and it will heal of it self; but if it were large, a small Leaden Pipe is to be put into the *Urethra*, lest it should be altogether clos'd up by the Scar. It is convenient to anoint the Pipe with some Desiccative Medicine, and to dress the Wound with Balsam. Lastly, a little Linen Bag or Case is to be made, in which the Yard is to be put, to keep on the Dressing; but it must be pierc'd at the end, for the convenience for making Water, having two Bands at the other end, which are ty'd round the Waste.

C H A P.

C H A P. XVI.

Of the Operation of Lithotomy.

THIS Operation is undertaken when it is certainly known that there is a Stone in the Bladder; to be assur'd of which, it may not be improper to introduce a Finger into the *Anus* near the *Os Pubis*, by which means the Stone is sometimes felt, if there be any: The Finger is likewise usually put into the *Anus* of young Virgins, and into the *Vagina Uteri* of Women, for the same purpose. But it is more expedient to make use of the *Catheter*, anointed with Grease, after this manner: The Patient being laid on his Back, the Operator holds the Yard strait upward, the *Glans* lying open between his Thumb and Fore-finger; then holding the *Catheter* with his Right-hand on the side of the Rings, he guides it into the Yard, and when it is entred, turns the Handle towards the *Pubes*, drawing out the Yard a little, to the end that the Duct of the *Urethra* may lie straight. If it be perceiv'd that the Probe hath not as yet pass'd into the Bladder, let him put his Finger into the *Anus* to conduct it thither. Afterward, in order to know whether a Stone be lodg'd in the Bladder, the Instrument ought to be shaken a little therein, first on the Right-side, and then on the Left; and if a small Noise be heard, it may be concluded for certain that there is a Stone: But if it be judg'd that the Stone swims in the Bladder, so that it

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cannot be felt, the Patient must be oblig'd to make Water thro' the *Catheter*.

Another manner of searching may be practis'd thus : Let the Yard be rais'd, inclining a little to the side of the Belly ; let the Rings of the *Catheter* be turn'd towards the Belly, and the End on the side of the *Anus* ; and then let this Instrument be introduc'd, shaking it a little on both sides to discover the Stone.

In order to perform the Operation of Lithotomy, the Patient must be laid along upon a Table of a convenient Height, so that the Surgeon may go about his Work standing ; the Patient's Back must also lean upon the Back of a Chair, laid down, and trimm'd with Linen Cloth, lest it should hurt his Body ; his Legs must be kept asunder, and the Soles of his Feet on the sides of the Table, whilst a Man gets up behind him to hold his Shoulders : His Arms and Legs must be also bound with Straps or Bands. Then a channell'd *Catheter* being put up into the Bladder, a Servant standing upon the Table on the side of the Chair, holds the Back of the Instrument between his two Fore-Fingers on that Part of the *Perinæum* where the Incision ought to be begun, which is to be made between his Fingers with a sharp Knife that cuts on both sides. The Incision may be three or four Fingers breadth, on the left side of the *Raphe* or Suture : But in Children its length must not exceed two Fingers breadth. If the Incision were too little to give passage to the Stone, it would be more expedient to enlarge it than to stretch the Wound with the *Dilaters*. When the Convex Part where the chanuelling of the *Catheter* is, shall be well

well laid open, the Conductors may be slip't into the same Channelling, between which the *Forceps* is to be put, having before taken away the *Catheter*. Some Operators make use of a *Gorget* or *Introducer* to that purpose, conveying the End of it into the channelling of the *Catheter*; which is remov'd to introduce the *Forceps* into the Bladder: And as soon as they are fixt therein, the Conductors or *Gorget* must be likewise taken out. Afterward search being made for the Stone, it must be held fast, and drawn out of the Bladder: But if the Stone be long, and the Operator hath got hold thereof by the two Ends, he must endeavour to lay hold on it again by the middle, to avoid the great scattering which would happen in the Passage. The Stones are also sometimes so large, that there is an absolute necessity of leaving them in the Bladder. Again, if the Stone sticks very close to the Bladder, the Extraction ought to be deferr'd for some time, and perhaps it may be loosen'd in the Suppuration. Lastly, when the Stone hath been taken out, an Extractor is usually introduc'd into the Bladder, to remove the Gravel, Fragments and Clots of Blood.

After the Operation, the Patient is carry'd to his Bed, having before cover'd the Wound with a good Bolster; and if an Hæmorrhage happens, it is to be stop't with Astringents: A Tent must also be put into the Wound, when it is suspected that some Stone or Gravel may as yet remain therein: But if it evidently appears that there is none, the Wound may be dress'd with Pledgits, a Plaister and a Bolster, of a Figure convenient for the Part. The Dressing may be kept up with

a Sling supported by a Scapulatory ; or else the Bandage of the double T may be us'd, the manner of the Application of which we have shewn elsewhere. The Patients Thighs must be drawn close one to another, and ty'd with a small Band, lest they should be set asunder again.

The Operation of Lithotomy in Women is usually perform'd by the *Lesser Apparatus*, which is done by putting the Fore-Finger and Middle-Finger into the *Vagina Uteri*, or into the Rectum in young Virgins, to draw the Stone to the Neck of the Bladder, and keep it steady so that it may be taken out with a Hook or other Instrument.

This Operation may also be effected in Women, almost in the same manner as in Men ; for after having caus'd the Female Patient to be set in the same Posture or Situation as the Men are usually plac'd, according to the preceding Description, the Conductors may be convey'd into the *Urethra*, to let in the *Forceps* between them, with which the Stone may be drawn out : But if it be too thick, a small Incision is to be made in the Right and Left side of the *Urethra*.

The *Lesser Apparatus* was formerly us'd in the Lithotomy of Men, after this manner : The Finger was put into the *Anus*, to draw the Stone toward the *Perineum* ; then an Incision was made upon the Stone on the side of the Suture, and it was taken out with an Instrument.

C H A P. XVII.

Of the Operation of the Puncture of the Perinæum.

THIS Operation is necessary in a Suppression of Urine, where the Inflammation is so great, that the *Catheter* cannot be introduc'd. Then an Incision is to be made with a Knife or Lancet, in the same Place where it is done in Lithotomy; and a small Tube or Pipe is to be put in the Bladder, till the Inflammation be remov'd.

C H A P. XVIII.

Of the Operation of the Fistula in Ano.

Fistulas are Callous Ulcers: If one of these happens in the Fundament, and is open on the outside, it may be cur'd thus: After the Patient hath been laid upon his Belly on the side of the Bed, with his Legs asunder, the Surgeon makes a small Incision with his Knife in the Orifice of a *Fistula*, in order to pass therein another small crooked Incision-Knife, at the End of which is a pointed Probe with a little Silver Head which covers it, to the end that it may enter without causing Pain. When the Surgeon hath convey'd his Knife into the *Fistula*, having the Fore-Finger of his

his Left-hand in the *Anus* or Fundament, he pulls off its Head, holding the Handle with one hand, and the Probe that pierceth the *Anus* with the other; and at last draws out the Instrument to cut the *Fistula* entirely at one Stroke.

If the *Fistula* hath an Opening into the Intestine, an Incision is to be made on the outside at the bottom thereof, to open it in the Place where a small Tumour or Inflammation usually appears, or else in the Place where the Patient feels a Pain when it is touch'd. If the Tumour be remote from the *Anus*, it may be open'd with the Potential Cautery, to avoid a greater Inconvenience. After having thus laid open the very bottom, the little Incision-Knife and Probe, with its Head, is to be pass'd therein, the End of the Probe is to be drawn thro' the *Anus*, and the Flesh is to be cut all at once. But if the *Fistula* be situated too far forward in the Fundament, the *Sphincter* of the *Anus* must not be entirely cut, otherwise the Excrements cannot be any longer retain'd. Lastly, when the *Fistula* hath been treated after this manner all its Sinuosities ought likewise to be open'd, and the Wound being fill'd with thick Pledgits steep'd in some Anodyn, is to be cover'd with a Plaister and a Triangular Compress, and the Bandage call'd the T made.

C H A P. XIX.

Of the Suture or Stitching of a Tendon.

THIS Operation is made when the Tendons are cut, and big enough to bear it. If the Wound be heal'd, it must be open'd again to lay the Tendons bare, and the Part must be bended, to bring together their Ends. Then the Surgeon taking a flat, straight, and fine Needle, with a double wax'd Thread, passes it into a small Bolster, and makes a Knot at the end of the Thread, which must rest upon the Bolster. Afterward he pierces the Tendon from the Outside to the Inside, at a good distance, lest the Thread should tear it, and proceeds to pass the Needle in like manner under the other End of the Tendon, upon which is laid a small Bolster, for the Thread to be ty'd in a Knot over it. Then he causes the Extremities of the Tendons to lie a little one upon another, by bending the Part, and dresseth the Wound with some Balsam. It may not be improper here to observe, that Ointments are never to be apply'd to the Tendons, which would cause 'em to putrifie, but altogether Spirituous Medicaments; and that the Part must be kept bent, lest the Extension of it should separate the Tendons.

C H A P. XX.

Of the Cæsarean Operation.

WHEN a Woman cannot be deliver'd by the ordinary means, this bold and dangerous Operation hath been sometimes perform'd with good Success. The Woman being laid upon her Back, the Surgeon makes a Longitudinal Incision beneath the Navel, on the side of the White-line, till the Wound appears, which he openeth, taking great Care to avoid wounding the Child ; Then he divides the Membranes with which it is wrap'd up, separates the After-burthen from the Womb, and takes out the Child. Lastly, he washeth the Wound with warm Wine, and makes the *Gastro-graphy* or stitching up of the Belly, without sewing the Womb. After the Operation, Injections are to be made into the *Matrix*, to bring away the Blood ; and a pierc'd Pessary must be introduc'd into its Neck.

C H A P. XXI.

Of the Operation of Amputation, with its proper Dressings and Bandages.

THE Leg is usually cut off about the Place where the Garter is commonly ty'd ; the Thigh as near as can be to the Knee, and the Arm as near as possible to the Wrist : But an Amputation is never made in the Articulation except in the Fingers and Toes.

In order to cut off a Leg, the Patient is to be set on the side of his Bed, or in a Chair, and supported by divers Assistants ; one of 'em being employ'd to hold the Leg at the bottom, and another to draw the Skin upward above the Knee, to the end that the Flesh may cover the Bone again after the Operation. In the mean while a very thick Bolster is laid under the Ham, upon which are made two Ligatures, *viz.* the first above the Knee to stop the Blood, by screwing it up with the *Torniquet* or *Gripe-stick* ; and the second below the Knee, to render the Flesh firm for the Knife. Before the Ligature is drawn close with the *Gripe-stick*, a little Piece of Pastboard is to be put underneath for fear of pinching the Skin. Thus the Leg being well fix'd, the Surgeon placeth himself between both the Legs of the Patient, to make the Incision with a crooked Knife, turning it circularly to the Bone, and laying one Hand upon the back of the Knife, which must have no Edge,

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Afterward the *Periosteum* is to be scrap'd with an Incision-Knife, and the Flesh, with the Vessels that lie between the two Bones are to be cut. When the Flesh is thus separated, a cleft Band is to be laid upon it, with which the Heads are cross'd, to draw the Flesh upward, to the Intent that the Bones may be cut farther, and that it may cover 'em after the Amputation, as also to facilitate the Passage of the Saw. Then the Surgeon holds the Leg with his Left-Hand, and saweth with his Right, which he lets fall upon the two Bones, to divide them asunder at the same time, beginning with the *Perone* or *Fibula*, and ending with the *Tibia*. But it is necessary to incline the Saw, and to go gently in the beginning, to make way for it, and afterward to work it faster. The Leg being cut off, the Ligature must be unty'd below the Knee, loosning the *Gripe-Stick* to let the Blood run a little, and to discern the Vessels with greater Facility; and then the *Gripe-Stick* may be twist'd again to stop the Blood; which some Surgeons effect by laying Vitriol Buttons upon the Opening of the Arteries, and Astringent Powders, on a large Bolster of Cotton or Tow, to be apply'd to the End of the Stump; but if such a Method be us'd, it is requisite that some Person be employ'd to keep on the whole Dressing with his Hand during twenty four Hours. However this Custom has prevail'd in the Hospital of *Hôtel Dieu* at *Paris*.

Others make a Ligature of the Vessels, taking up the Ends of them with a Pair of *Forceps*, having a Spring; or with the *Valet a Patin*, which is a sort of Pincers that are clos'd with a small

Ring

Ring let down to the bottom of the Branches. These Pincers being held by a Servant, the Surgeon passeth a Needle with wax'd Thread, into the Flesh, below the Vessel, bringing it back again, and with the two Ends of the Thread makes a good Ligature upon the same Vessel; then he looseth the *Gripe-Stick* and the Band, the Stump is to be somewhat bended, and the Flesh let down to cover the Bones.

The Dressing and Bandage.

After the Operation, it is requisite to lay small Bolsters upon the Vessels, and dry Pledgits upon the Two Bones, as also many other Pledgits strew'd with Astringent Powders; and over all another large Bolster or Pledgit of Cotton or Tow, cover'd in like manner with Astringent Powders; then the whole Dressing is to be wrapt up with a Plaister and a Bolster, in form of a *Malta Cross*; so that there are three or four Longitudinal Bolsters, and one Circular.

The Surgeon usually begins to apply the *Malta Cross* and Bolster under the Ham, crossing the Heads or Ends upon the Stump, and causeth 'em to be held by a Servant that supports the Part; then he likewise crosseth the other Heads, and laying on the two Longitudinal Bolsters that cross each other in the middle of the Stump, together with a Third Longitudinal, which is brought round about the Stump, to stay the Two former: These Bolsters ought to be Three Fingers broad, and very long, to pass over the Stump. Afterward he proceeds to apply

The Bandage commonly call'd Capeline by French Surgeons.

This is made with a Band four Ells long, and three Fingers broad, roll'd up with one Ball, three Circumvolutions being made on the side of the Part which is amputated; the Band is to be carry'd upward with Rollers, passing obliquely above the Knee, and is brought down again over its former Turns. If it be thought fit to make this Bandage with the same Band, it must be let down to the Middle of the amputated Part, and carry'd up again to the Knee, many back-folds being made, which are stay'd with the Circumvolutions, till the Stump be intirely cover'd, and the whole Bandage wrapt up with Rollers or Bolsters.

The *Capeline* with Two Heads is made with a Band of the same breadth, but somewhat longer. This Band being at first apply'd to the middle of the Wound, the Heads are carry'd up above the Knee, and one of the Ends are turn'd backward to bring it down, and to pass it over the End of the Stump. At every back-fold which is form'd above and below the Knee, a Circumvolution is to be made with the other End of the Band, to strengthen the back-folds, continuing to bring the Band downward and upward, till the whole Stump be cover'd: Then Edgings are made round the Stump, and the Band is stay'd above the Knee. Afterward the Part may be brought to Suppuration, cleans'd and cicatriz'd.

C H A P. XXII.

Of the Operation of the Aneurism.

THIS Operation is perform'd when the Surgeon hath prick'd an Artery, or when a Tumour ariseth in an Artery.

To this purpose the Patient is set in a Chair, and a Servant imploy'd in holding his Arm in a Posture proper for the Operation; then a Bolster is to be laid four double, following the Progress of the Artery, to the end that the Ligature may better press the Vessel; and the Arm may be also surrounded with another single Bolster, on which is made a Ligature screw'd up with a *Gripe-stick*, provided the Arm be not too much swell'd; for in this Case it wou'd be more expedient to defer the Operation for fear of a Gangrene. The Artery being thus well stop'd, the Surgeon lays hold on the Arm with one Hand, below the Tumour, and with the other makes an Incision with his Lancer, beginning at the bottom of the Tumour, and ending on the top along the Progress of the Artery. When the Tumour is open'd, the coagulated Blood may be discharg'd with the Finger: And if there are any Strings at the bottom, they may be cut with a crooked Pair of Scissars, to the end that all the Clods of Blood, and other extraneous Bodies (which are sometimes form'd in *Aneurisms* when they are very inveterate) may be more easily remov'd. But the

Gripe-Stick must be loosen'd, to discover the Opening of the Artery with greater Facility, and the Artery separated from the Membranes with a Fleam; for it wou'd be dangerous to cut it with a streight Incision-Knife: The Artery must also be supported with a convenient Instrument to divide it from the Nerve and Membranes: and to be assur'd of the Place of its Opening, the *Gripe-Stick* may be somewhat loosen'd, and afterward screw'd up again. In the time the Surgeon gives the Instrument to a Servant to hold, whilst he passeth under the Artery a crooked Needle with a wax'd String, cuts the Thread, and takes away the Needle: Then he begins to make the Ligature beneath the Opening of the Artery, tying at first a single Knor, on which may be put (if you please) a small Bolster, that may be kept steady with too other Knots: It is also necessary that another Ligature be made in the lower part of the Artery, by reason that the little lateral Arteries might otherwise let out Blood.

The Artery ought not to be cut between the two Ligatures, lest the first Ligature shou'd be forc'd by the Impulsion of the Blood; but the Thread must be let fall, that it may rot with the Suppuration. Then the Wound may be dress'd with Pledgits, Bolsters strew'd with Astringent Powder and Plaister; a Bolster being also laid in the bending of the Elbow.

The Bandage

Is made with a Band six Ells long, and an Inch Broad, roll'd up at one end, being at first applied with divers Circumvolutions under the Elbow, and moderately bound. Many turns are to be made, and a thick and streight Bolster is to be laid upon the Tumour, (as in the Bandage for Phlebotomy) along the Artery, till it pass under the Arm-pit : The Arm and Bolster must be surrounded with the Band, which is brought up with small Rollers, to the Arm-pit, and stay'd with Circumvolutions round about the Breast. Afterward the Patient is to be laid in his Bed with the Arm lying somewhat bended on the Pillow, and the Hand a little higher than the Elbow.

C H A P. XXIII.

Of the Operation of Phlebotomy.

TO perform this Operation, the Surgeon holds the Lancet between his Thumb and Fore-Finger, and Three other Fingers lying upon the Patient's Arm, and thrusts the Point of the Lancet into the Vessel, carrying the same Point somewhat upward, to make the Orifice the greater. If a Tendon, which is known by its hardness ; or an Artery, which is discover'd by Pulsation, appear beyond the Vein, and very near it, the Lancet must be only thrust into the

Vein,

Vein, and drawn back again streight, without turning up its Point, otherwise the Artery or Tendon would be certainly cut with the Point. If the Artery or Tendon lies immediately under the Vein, the latter must be prick'd somewhat underneath, holding the Lancet inclin'd side-ways, and thrusting it very little forward; so that the Point will finish the Opening, by turning it upward.

If the Artery adhere closely to the Vein, the latter is to be prick'd higher or lower than it is ordinarily done; and if the Vein be superficial, and lie close upon a hard Muscle, the Lancet must not be thrust downright into the Vein, but it is requisite to carry it somewhat obliquely, and to take the Vessel above, lest the Muscle and its Membrane should be prick'd, which would cause a great deal of Pain, and perhaps a vehement Inflammation. It is well known that the Veins of the Right Arm are usually open'd with the Right-Hand, and those of the Left-Arm with the Left-Hand.

The Bandage

Is made thus: The Surgeon having laid a Bolster upon the Orifice, keeps it close with two Fingers, and holds the Band or Fillet with the other Hand; then taking one end of the Fillet with the Middle-Finger, Fore-Finger and Thumb, and applying it to the Bolster, he makes with the longest end of the Fillet, divers Figures in form of the Letter X on the bending of the Arm; as also a backfold with the shorter end of the Filler, held between his three Fin-

Fingers. Afterward both ends of the Fillet are ty'd beneath the Elbow.

If an Inflammation happens after the Operation, the Bolsters are to be dip'd in *Oxycrate* : but if the Orifice where so small as to produce a *Thrombus*, it would be requisite to press the Wound often with Two Fingers, and immediately to apply a Bolster dip'd in *Oxycrate*.

C H A P. XXIV.

Of the Operation of Encysted Tumours.

IF the Tumours are small and pendulous, and have a narrow bottom, a Ligature may be made with Horse-Hair or Silk dip'd in *Aqua-Fortis*, which will cause 'em to fall off of themselves after some time ; or else they may be cut above the Ligature.

If the Tumour or Wen be thick, and its bottom large, a Crucial Incision is to be made in the Skin, without impairing the *Cystis* or Bag ; and when the Incision is finish'd, the Bag may be torn off with the Nails, or with the Handle of a Pen-Knife ; but sometimes it is necessary to dissect it. If there be any considerable Vessels at the Root, they may be bound or else cut ; and the Blood may be stop't with Astringents. If any parts of the *Cystis* remain, they are to be consum'd with Corrosives ; and the Lips of the Wound are to be drawn together without a Stitch, making use only of an agglutinative Plaister. But

if the Tumour adheres very close to the *Pericranium*, it is most expedient not to meddle with it at all.

Of Ganglions.

Ganglions are Tumours arising upon the Tendons and Nervous Parts, which may be cur'd by compressing them and making a very strait Bandage, provided they be very recent : a resolvent Plaister is also to be apply'd to the Part.

CHAP. XXV.

Of the Operation of the Hydrocephalus.

THIS Operation is perform'd when it is necessary to discharge watry Humours out of the Head : If these Waters lie under the Skin, a very large Opening is to be made with a Lancer, and a small Tube or Pipe left therein to let 'em run out. If the Water lie between the Brain and the *Dura Mater*, the Membrane is to be perforated with a Lancer, after the Trepan hath been apply'd according to the usual Method, of which we have already given some account: Cauteries and Scarifications may be also us'd to very good purpose in this Disease.

C H A P. XXVI.

Of the Operation of cutting the Tongue-String.

WHEN the Ligaments of the Tongue in Infants is extend to its Extreimity, they cannot suck without difficulty; and when grown up, they have an Impediment in their Speech.

This Ligament may be cut with a little pair of Scissars; to which Purpose the Thumb of the Left-hand being laid upon the Gum of the Lower-Jaw, to keep the Mouth open, the Tongue must be rais'd with the Fore-Finger of the same Hand, and the Scissars pass'd between the Two Fingers, to divide the String as near as is possible, to the Root of the Tongue, avoiding the Vessels: If an Hemorrhage happens, recourse may be had to Styptick Waters. Afterward the Nurse must take care to let a Finger be often put into the Child's Mouth, to prevent the re-uniting of the String.

C H A P. XXVII.

*Of the Operation of opening stoppt
Ductus's.*

IF there be only one Membrane that stops the Entrance of the *Vagina*, an Incision may be made, and a Leaden Pipe put into it, having Rings to fasten it to the Waste, to hinder the reuniting of the Wound.

If the Lips of the *Pudendum* are clos'd the Patient must be laid upon her Back, and her Knees rais'd, in order to make an Incision with a crooked Incision-Knife, beginning at the Top; and then a Leaden Pipe is to be put into the Orifice.

If the *Vagina* be fill'd with a Fleshy Substance, an Incision must be made therein, till it be entirely perforated, putting at the same time a Leaden Tube into the Orifice.

If the Urinary *Ductus*, as well in young Boys as in Virgins, be stoppt up, an Incision is to be made therein with a very narrow Lancet; and if a small Leaden Pipe can be conveniently introduc'd, it may be done; but it is not very necessary, in regard that Children are almost always making Water, which would of it self hinder the closing of the Orifice.

If the *Ductus* of the Ear be stoppt with a Membrane, it must be perforated, taking care not to go too far, for fear of piercing the
Men-

Membrane of the *Tympanum* or Drum, and a small Leaden Pipe is to be put into the Opening.

If there be a carnous Excreſcence on the outside of the Ear, a Ligature ought to be made on it; or else it may be cut off with a Pair of Scissars, and the rest of the Fleſhy Substance that remains in the Ear must be consum'd with Causticks, convey'd to the Part by the means of a small Tube, care being had nevertheless, to avoid hurting the *Tympanum*.

C H A P. XXVIII.

Of the Operation of the Phymosis and Paraphymosis.

W H E N the *Præputium* is so streight that the Glands can be no longer uncover'd, this Indisposition is call'd *Phymosis*, but if the *Præputium* be turn'd back above the *Glans*, after such a manner that it can no longer cover the same Glands, it is a *Paraphymosis*. If in the *Phymosis* the *Præputium* cleaves very close round the *Glans*, it is best to let it alone; but if in handling the *Glans* it be perceiv'd that it is moveable, or else that some parts of it only stick together, the Operation may be perform'd after this manner: The Patient being set in a Chair, let a Servant pull back the Skin to the Root of the *Penis*, to the end that the Incision may be made directly at the bottom of the *Glans*:

Glans : Then the Surgeon having drawn out the bottom of the *Præputium*, introduces a small Instrument with a very sharp Point on its flat side, at the end of which is fix'd a Button of Wax, pierces the *Præputium* at the bottom of the *Glans* on the side of the Thread, and finisheth the Incision by drawing the Instrument toward himself.

The *Paraphymosis* is cur'd by making Fomentations on the Part, to allay the Inflammation, if there be any ; and it is to be pull'd down with the Fingers. But if Medicinal Preparations prove ineffectual, Scarifications are to be made round about the *Præputium* ; and afterward convenient Remedies may be apply'd to remove the Inflammation, and prevent the Mortification of the Part, so that at length the *Præputium* may be drawn over the *Glans*.

C H A P. XXIX.

Of the Operation of the Varix.

IN order to cure this Tumour, the Surgeon having first cut the Skin to discover the dilated Vein, separates it from the Membranes, and passeth underneath a crooked Needle with a double wax'd Thread ; then he makes a Ligature both above and below the dilatation of the Vein, opens the dilated Part with a Lancer, to let out the Blood, and applies a convenient Bandage : But without performing this

Ope-

Operation, the Vein might be open'd with a Lancet, to draw out a sufficient quantity of Blood; and then the *Varix* is to be press'd with a somewhat closer Bandage.

C H A P. XXX.

Of the Operation of the Panaritium.

THE *Panaritium* is an Abscess which ariseth at the end of the Fingers; some of the Tumours are only superficial; and others penetrate even under the *Periosteum*; nevertheless after whatsoever manner the *Panaritium* may happen, it ought to be open'd on the side of the Finger, that the Tendons may not be hurt. If the Abscess be extended under the *Periosteum*, the opening must be made on the side, and the Lancet thrust forward to the Bone: Afterward the Pus or corrupt Matter is to be discharg'd, which would cause the Tendons to putrefie, if it should remain too long upon 'em.

The Dressing and Bandage

Are made with a Plaister cut in form of a *Malta Cross*, whose middle is apply'd to the end of the Finger, the Tails being cross'd round it. The Bolsters must be also cut in the shape of the *Malta Cross*, or of a plain Cross only; the Band being a Finger's breadth wide;

wide, and long enough to be roll'd about the whole Dressing : It must be pierc'd at one of its ends, and slit the length of three Fingers at the other ; so that the two Heads may pass through the Hole, to roll up the Fingers with small Edgings.

C H A P. XXXI.

Of the Reduction of the falling out of the Anus.

TO reduce the *Anus* to its proper place when it is fallen out; the Patient being laid upon his Belly, with his Buttocks higher than his Head, the Operator gently thrusts back the Roll, made by the Protrusion of the Fundament, with his Fingers dipt in the Oil of Roses. Then he applies Bolsters steeped in some Astringent Liquor, which must be supported with a sort of Bandage, the Nature of which we shall shew in treating of the Fracture of the *Coccyx* the T, the double T, or else the Sling with four Tails.

C H A P. XXXII.

Of the Reduction of the falling out of the Womb.

IN this Operation, the Patient being laid upon her Back, with her Buttocks rais'd up, Fomentations are to be apply'd to the Part, a Linen Cloth is to be laid upon the Neck of the Womb which is out of its Place, and it is to be put up very gently with Fingers, without using much force. If the Womb should fall out again, it would be requisite to convey a Pessary into it, after it hath been reduc'd; and to enjoyn the Patient to lie on her Back with her Legs a-cross.

C H A P. XXXIII.

Of the Application of the Causticks.

A Cautery is an Ulcer which is made in the Skin, by applying Causticks to it, after this manner:

The Surgeon having moisten'd the Skin for a while with Spittle, or else having caus'd a light Friction to be made with a warm Cloth, applies a perforated Plaister to the Parts, and lay the
Caustick

Caufticks on the Hole, leaving it for a longer or shorter time, accordingly as he knows its Efficacy, or as the Skin is more or less Fine. Afterward he fortifieth the Escar with his Lance, and puts a Suppurative, or piece of fresh Butter on the Part, till it be fallen off.

The Dressing and Bandage.

After the Application of the *Lapis Infernalis*, or any other Caustick, it is necessary to lay on it a Plaister, a Bolster, and a Circular Bandage, which ought to be kept sufficiently close to press the Stone, having first put a Pea or little piece of Orice-Root, into the Ulcer to keep it open. Then the Patient is to make use of this Bandage, with which he may dress it himself. Take a piece of very strong Cloth, large enough to go round the Part without coming over it: And let three or four Holes be made in one of its sides, as many small Ribbands or Pieces of Tape being sew'd to the other, which may be let into the Holes, as occasion serves to close the Band.

C H A P. XXXIV.

Of the Application of Leeches.

THE Leeches must be taken in clear running Waters, and be long and slender, having a little Head, the Back green with yellow Streaks, and the Belly somewhat reddish. Before they are apply'd, let 'em purge during some Days in fair Water, fast half a Day in a Box without Water. Afterward the Part being rubb'd or chaff'd with warm Water, Milk, or the Blood of some Bowl, the Opening of the Box is to be set to the Part, or the Leeches themselves laid upon a Cloth; for they will not fasten when taken up with the Fingers. The End of their Tail may be cut with a Pair of Scissars, to see the Blood run, and to determine its Quantity, as also to facilitate their Sucking. When you wou'd take 'em away, put Ashes, Salt, or any other sharp thing upon their Head, and they will suddenly desist from their Work; but they are not to be pull'd off by force, lest they shou'd leave their Head or Sting in the Wound, which wou'd be of very dangerous Consequence. When they are remov'd, let a little Blood run out, and wash the Part with salt Water.

The Dressing

Is made with a Bolster soak'd in some Strypick Water, if the Blood will not otherwise stop; or in Brandy or *Aqua Vita*, if there be an Inflammation; and this is to be kept on with a Bandage proper for the Part.

C H A P. XXXV.

Of the Application of the Seton.

TO perform this Operation, a Cotton or Silk Thread is to be taken, after it hath been dip't in Oil of Roses, and let into a kind of Packing Needle; then the Patient sitting in a Chair, is to hold his Head backward, whilst the Surgeon gripes the Skin transversely in the Nape of the Neck with his Fingers, or else takes it up with a Pair of *Forceps*, and passeth the Needle through the Hole of the *Forceps*, leaving the String in the Skin. As often as the Bolster that covers the *Seton* is taken off, that Part of the String which lies in the Wound is to be drawn out, and cut off.

C H A P.

C H A P. XXXVI.

Of Scarifications.

SCARIFICATIONS are to be made more or less deep, accordingly as Necessity requires, beginning at the bottom, and going upward, to avoid being hinder'd by the Hæmorrhage. They must also be let one into another, that Strings may not be left in the Skin.

C H A P. XXXVII.

Of the Application of Vesicatories.

VESICATORIES are compounded with the Powder of *Cantharides* or *Spanish Flies*, mix'd with very sower Leaven, or else with Turpentine. Before they are apply'd, a light Friction is to be made on the Part with a warm Cloth, and a greater or lesser Quantity is to be laid on, accordingly as the Skin is more or less fine, leaving 'em on the Part about seven or eight Hours; then they are to be taken away, and the Blisters are to be open'd, applying thereto some sort of Spirituous Liquor.

C H A P.

C H A P. XXXVIII.

Of the Application of Cupping-Glasses.

A Good Friction being first made with warm Clothes, lighted Tow is to be put into the Cupping-Glass, or else a Wax-Candle fasten'd to a Counter, and then it is to be apply'd to the Part till the Fire be extinguish'd, and the Skin swell'd, reiterating the Operation as often as it is necessary; and afterward laying on a Bolster steep'd in Spirit of Wine. These are call'd Dry Cupping Glasses: But if you wou'd draw Blood, every thing is to be observ'd that we have now mention'd besides that Scarifications are to be made, according to the usual manner; and the Cupping-Glass is to be set upon the Scarifications: but when the Cupping-Glass is half full of Blood, it must be taken off to be empty'd, and the Application thereof is to be re-iterated, as often as it is requisite to take away any Blood. Lastly, the Incisions are to be wash'd with some spirituous Liquor; and a Bandage is made convenient for the Parr.

C H A P. XXXIX.

Of the opening of Abscesses or Impostumes.

AN Abscess or Impostume ought to be open'd in its most ripe Part, and in the Place to which the Tumours tend, endeavouring to preserve the Fibres of the Muscles from being cut, unless there be an absolute Necessity, avoiding also the great Vessels, Tendons and Nerves. The opening must be rather large than small, and not too much press'd in letting out the purulent Matter. If the Skin be thick, as it happens in the Heel, it may be par'd with a Razor; and if the Matter be lodg'd under the Nails, it wou'd be requisite to scrape 'em with Glass before they are pierc'd.

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A circular library stamp from the British Museum, London. The text "BRITISH" is curved along the top inner edge, and "MUSEUM" is curved along the bottom inner edge. In the center, the date "7 OCT 32" is stamped. There are four small dots arranged in a square around the central date.



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CHAP. I.

Of the Fracture of the Nose.

WHEN the Fracture is considerable, the Nostrils are stop'd up, and the Sense of Smelling is lost. In order to reduce it, the Surgeon takes a little Stick wrapp'd up in Cotton, and introduceth it into the Nostrils as gently as is possible, to raise up the Bones again, laying the Thumb of his Left-hand upon the Nose, to retain 'em in their Place. The Bones being thus set, he proceeds to prepare

The

The Dressing and Bandage.

By conveying into the Nostrijs certain Leaden Pipes of a convenient bigness and Figure, which serve to support the Bones, and to facilitate Respiration. But Care is to be had to avoid thrusting 'em up too far, for fear of hurting the sides of the Nose; and they are to be anointed with Oil of Turpentine mix'd with Spirit of Wine: These Pipes must have little Handles, with which they may be fasten'd to the Cap. If there be no Wound in the Nose, there will be no need of a Bandage; but if the Fracture be accompany'd with a Wound, after having apply'd proper Medicines, it will be requisite to lay upon each side of the Nose a Triangular Bolster, cover'd with a little piece of Pastebord of the same Figure. This small Dressing is to be supported with a kind of Sling that hath four Heads; being a piece of Linen Cloth, Two Fingers broad, and half an Ell long; it is slit at both Ends, and all along, only leaving in the middle a Plain of Three Fingers, that is to say, a Part which is not cut. The Plain of this Sling is to be laid upon the Fracture, causing the upper Heads to pass behind the Nape of the Neck, which are to be brought back again forward; the lower Heads are likewise to be carry'd behind crossing above the upper, and afterwards to be return'd forward. If the Bones of the Nose be not timely reduc'd, a great Deformity soon happens therein, and a Stink caus'd by the Excreescences and Polypus's.

C H A P. II.

Of the Fracture of the Lower-Jaw.

THE Operator at first puts his Fingers into the Patient's Mouth, to press the Prominences of the Bones; and afterward doth the same thing on the Outside. If the Bones pass one over another, a small Extension is to be made. If the Teeth be forc'd out of their Place, they are to be reduc'd, and fasten'd to the sound Teeth with a wax'd Thread.

The Dressing and Bandage.

If the Fracture be only on one side, a Bolster sew'd to a piece of Paste-board is to be laid upon the flat side of the Jaw, both being of the Figure and Size of the Jaw it self. The Bandage of this Fracture is call'd *Chevestre*, i. e. a Cord or Bridle, by the French Surgeons, and is made by taking a Band roll'd with one Head or End, three Ells long, and two Fingers broad; the Application of it is begun with making a Circumvolution round about the Head in passing over the Forehead; then the Band is let down under the Chin, and carry'd up again upon the Cheek, near the lesser Corner of the Eye in passing over the Fracture; afterward it is rais'd up to the Head, and brought down again under the Chin, to form a Roller or Bolster upon the

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Fracture

Fracture : Thus three or four Circumvolutions and Rounds being made upon the Fracture, the Band is let down under the Chin, to stay and strengthen its several Turns, and is terminated round the Head, in passing over the Fore-head.

If the Jaw be fractur'd on both sides, it would be requisite to apply thereto a Bolster and Pastboard, perforated at the Chin, and of the Figure of the intire Jaw; the Bandage which we have even now describ'd, may be also prepar'd in making Turns on both sides of the Jaw : Or else the double *Chevestre* may be made with a Band of five Ells long, and two Fingers broad, roll'd up with two Balls, that is to say, with two Ends. The Application of this Band is begun under the Chin, from whence it is carry'd up over the Cheek, cross'd upon the Top of the Head, and brought down behind the Head, where it is cross'd again; Then it is let down under the Chin, cross'd there, and carry'd up over the Fracture; afterward the Band being pass'd three or four times over the same Turns, in making Rollers upon the Jaws, is turn'd upon the Chin, and stay'd upon the Forehead round about the Head.

A Remark of Mons. Arnaud.

In all Fractures and Luxations of the Lower Jaw, *M. Arnaud* uses only the *Fronde* or Sling with four Tails, large enough to embrace the whole Chin : It must have a Hole in the Middle of it to put the End of the Chin thro'; then it is to be applied like other Slings, by passing the Tails over the Head. This is far more convenient than any Bandages formerly in use.

C H A P. III.

Of the Fracture of the Clavicle

THE Patient is to be set in a Chair, and his Arm is to be drawn backward, whilst an Assistant thrusts his Shoulder forward : In the mean time the Operator sets the Bones again in their Place, by thrusting the Protuberances, and drawing out the sunk Bone.

Or else a Tennis-Ball may be taken, and put under the Patient's Arm-pit, whose Elbow is then to be prest against his Ribs, whilst the Surgeon reduceth the Fracture.

Otherwise the Patient may be laid upon his Back, putting a Convex Body under both his Shoulders, as a Bowl or large wooden Porringer ; and then the Shoulders may be press'd, to raise up the two Ends of the Bones, which the Surgeon must take care to reduce.

The Dressing and Bandage.

The Cavities which are above and below the Clavicle, are to be filled with Bolsters trimmed with Paste-boards ; another is to be also laid upon the Bone, which is almost of the same Figure with the Clavicle, and a large Bolster, to cover the three others : This Dressing is to be secured with the Bandage called the *Capeline* or Head-bandage, provided the Fracture be in the middle of the Clavicle. A Band being taken

about six Ells long, and four Fingers thick, roll'd with two Balls ; it is apply'd in the middle to the Fracture ; one of its Heads or Ends is let down upon the Breast, whilst the other is pass'd behind the Back, below the Arm-hole, opposite to the indispos'd Arm-hole, and above the Breast, to be carry'd over the other End of the Band, which is rais'd up, to make an Edging upon the Fracture : The other end is pass'd under the indispos'd Arm-pit, and upon the Band that made the Roller, which is elevated by making a third Roller upon the Clavicle : These Circumvolutions round about the Body are continu'd, as also these Edgings upon the Clavicle, till it be intirely cover'd. Some Circumvolutions are also made upon the upper Part of the Arm, near its Head : The Space that lies between the Edgings and the Circumvolutions of the Arm, which bears the Name of *Geranium* or Storks-bill, is likewise cover'd with some Circumvolutions, and the Band is staid by making Circumvolutions quite round about the Body.

If the Fracture were near the Head of the *Humerus* or Arm-bone, a sort of Bandage might be prepared, which is called *Spica*, with a Band roll'd with one Ball five Ells long, and four Fingers broad ; one end of this Band is pass'd under the Arm-pit opposite to the indisposed one behind the Back : The other end is convey'd under the indisposed Arm-pit ; the Figure of the Letter X is made on the Shoulder ; the Band is return'd below the other Shoulder behind ; it is brought back again before, to form a second X upon the Fracture ; three or four more are made upon the Fracture ; two Circum-

convolutions are made in the upper part of the *Humerus*, which constitute a Triangle, called *Geranium*; This Triangle is cover'd with Edgings, and the Band is terminated round about the Breast.

CHAP. IV.

Remarks, with a new Machine of Monsieur Arnaud's for the Fracture of the Clavicle.

TO restore the fractur'd Clavicle, let a Servant draw back both the Shoulders with both his Hands, putting his two Thumbs one against the other on the Spine, and let him manage the Shoulders with his Fingers, keeping the Patient in this Posture to give the Operator an Opportunity to restore the fractur'd Clavicle. After the ends of the Bone are put together, the Servant must continue to keep them in the same Situation whilst the Dressings are applied; for if he should let go his Hold before that was done, they would fall out of their Places.

You must not lay any Bolster or Paste-board along the Clavicle, as is commonly done, because the Bandage pressing on it would cause it to fall out of its place; but these must be laid above and underneath the Clavicles in the Cavities which are there, and lay a Roll above and under the Clavicle near its Articulation to the Shoulder, taking care that that below be longer

than that above. This is done by folding back diverse times the Compress. These Compresses must rise higher than the Clavicle, which is done by multiplying them, that the Band which keeps on the Dressing, may not thrust the Clavicle down. Next lay two Bolsters cross-wise, and cover all with a large Oval Paste-board cut after the fashion of a Heart, that so it may fit the Neck and Shoulder better, and keep all on with the Bandage call'd *Spica*, beginning by applying the End of it before on the Breast. And since the chief business is to keep the Shoulders back that the Bones may not fall out of their places, you may make divers Turns of the Band to the middle of the Arm, beginning from before to behind; for if you should begin the contrary way, the Arm would be drawn forwards, which is contrary to the Intention of the Operator, who must always draw the Shoulders back.

But as these Turns hinder the free Circulation of the Blood, and by consequence obstruct the Nourishment of the Arm, and are very troublesome to it, I shall describe a Machine of Mr. *Arnaud's* Invention, which answers all these Intentions without any of those Inconveniences.

*A Machine of Mons. Arnaud's Invention
for a Fracture of the Clavicle.*

This Machine is a Cross or Steel T, whose Branches are about two Inches broad, and cover'd with some proper Stuff. The upright or long Stuff goes from the top of the Spine, beginning between the two Shoulders, and ends at bot-

The Traverse must be fastned to the top of the Upright, and passe acrofs over both Shoulders. At the end of each Traverse there must be fastned a Plate of Iron as large as the Hand, which must be made like a Spoon, and hollow'd so as exactly and commodiously to embrace the Shoulder before, to draw the Shoulders back. This sort of Spoon must be raised a little round the Edges, and cover'd with some proper Stuff, that it may not hurt the Patient's Shoulders. This Spoon must contract it self as it goes backwards, making a sort of a Cuff. This Cuff is fastned behind to the Extremity of the Traverse, with a Screw. The Tail of one of these Spoons must open and have a Hinge: For when one is apply'd to one Shoulder, the other could not be apply'd to the other Shoulder without such a Devise. There must be at the Extremity, that is, at the foremost and largest a long steel Rochet, which must go under the Patient's Arm-pit, and be fastned with a Strap behind to the Extremity of the Traverse of the Crofs. You must put a Leather Strap at the bottom of the Crofs to tie it round the Loins, and fasten it before on the Belly with a Buckle; for by the help of this you must draw the Shoulders back more or less as it ty'd more or less streight about the Body, and the bottom of the Crofs plac'd higher or lower on the Back.

C. H A P. V.

*Of the Fracture of the Scapula or
Shoulder-Blade.*

THE *Acromion* is usually fractur'd, but it may be known that the middle of the *Omplata* is broken by a Numbness which is felt in the whole Arm : Whereupon the Surgeon, after having examin'd the Place of the Fracture, thrusts back the Prominences of the Bones into their Place ; and if any Splint happen to prick the Part, he makes an Incision to take 'em out, or to cut off their Points.

The Dressing and Bandage.

A Bolster is laid upon the *Stapula*, as also a large piece of Paste-board of the bigness and figure of this Bone, and a sort of Bandage is prepar'd, known by the Name of *the Star*, with a Band roll'd with one Head four Ells long, and as many Fingers broad. This Band is convey'd behind the Back, one of its Ends lying under the Arm-hole, opposite to the indisposed one ; but the other is pass'd under the Shoulder, and afterward above it, to make an X in the middle of the Back ; then passing under the other Arm-hole, it is brought up to the Shoulder to be let down, and to form a second X upon the middle of the Back :

Back: These Turns are continu'd in making Rollers, till the *Scapule* are all cover'd: Circumvolutions are also made round the upper part of the *Humerus*, as in the *Spica*; and the Bandage is finish'd by Circumvolutions round about the Breast.

• C H A P. VI.

Of the Fracture of the Ribs.

WHEN a Rib is broken, one of the ends pusheth into the Breast, sometimes on the outside; and sometimes the Ends lie against each other. In order to reduce it, the Patient being laid upon the sound Rib, a Plaister of Mastic is apply'd to the Fracture; and it is drawn out violently; so that sometimes this Attraction brings back the Bone, which is advanced into the Breast, but the surest way is to make an Incision therein, to raise it up with the Finger.

If the Rib appear without, the Patient is to be set in a Chair, and must bend his Body on the side opposite to the Fracture, holding his Breath strongly, in order to dilate the Breast, whilst the Surgeon thrusts the Rib into its place.

The Dressing and Bandage.

A Bolster is to be apply'd to the Fracture, with two little pieces of Paste-board laid in form of a St. Andrew's Cross; and another Bolster upon the whole Dressing, on which is also laid a large square Paste-board cover'd with a Bolster. The Bandage is made with a Napkin folded into three Folds, which is put round the Breast, being stitch'd to, and supported by the Scapulary; which is a Band six Fingers broad, perforated in the middle, to let in the Head. The two ends of the Scapulary are fastned before and behind to the Napkin.

C H A P. VII.

Of the Fracture of the Sternum, or Breast-Bone.

TO reduce this Fracture, the Patient must be laid upon his Back, with a Convex Body underneath; and both his Shoulders press'd with some weight, to push 'em backward, and to raise up the Sternum, which is sunk down; or else an Incision may be made upon the Bone, to discover it; and then a *Vestis* is to be apply'd thereto very gently, in order to raise it up into its place.

The Dressing and Bandage.

A Bolster and Paffe-board are to be laid upon the *Sternum*, almost of the same Figure with the Part; and the Bandage is to be prepared with a Napkin supported with a Scapulary. Or else the Bandage called *Quadriga* may be made with a band roll'd with two Heads, five Ells long, and four Fingers broad: The Application of this Band is begun under the Arm-pit, the Figure of X is form'd under the Shoulder; the Band is carry'd downward with the two Balls, one before, and the other behind; it is passed under the other Arm-hole; the Heads are cross'd upon the Shoulder, and it is brought down backward and forward, forming an X before and behind. Afterward the Band is rolled about the Breast leaving Edgings; these Rollers are continu'd till it be terminated, and it is stay'd by a Circumvolution round the Breast.

C H A P. VIII.

Of the Fracture of the Vertebrae.

THE Processes of the *Vertebrae* are commonly broken, and their Bodies but seldom: It may be known that the Body of the *Vertebra* of the Neck and Back is fractur'd by the Palfie of the Arm, accompanied with the loss

loss of Feeling ; by the suppression of Urine and by the Palsie of the *Sphincter* of the *Anus* ; so that the Excrements cannot be any longer retain'd. If these Symptoms appear, it may well be conceived that the Marrow is compress'd, and prick'd with Points ; for the removing of which it is necessary to make an Incision upon the Body of the *Vertebra* in the fractur'd Place.

If the Spinal Processes are only fractur'd ; these Accidents will not happen ; only some Pain will be felt : To reduce 'em, the Patient is to be laid upon his Belly, and the Surgeon must use his utmost Endeavours to raise up the Bone again, and to set it in its natural Situation.

The Dressing and Bandage.

If a Spinal Process were fractur'd, it would be requisite to apply to each side of it a small long Bolster, which is to be cover'd with a PASTE-board of the same Figure with the Bolster ; another Bolster lying upon each PASTE-board. The Bandage is to be made with a Napkin sustain'd by its Scapulary ; or else the *Quadriga* may be used according to the manner we have already describ'd in the Fracture of the *Sternum*.

C H A P. IX.

Of the Fracture of the Os Sacrum.

IT is reduc'd as the other *Vertebrae*; but its Dressing and Bandage are made with the T perforated at the *Anus*, or else with the II or double T. It is made with a Band two Fingers broad, and long enough to encompass the Body above the Hips; so that to the middle of this Band is fasten'd another Band of the same breadth, and of a sufficient length to pass over the Dressing of the *Os Sacrum*, as also between the Thighs, to be join'd in the fore-part to the first Cincture. The double T. is made by fastning two Bands at a Finger's breadth distance one from another, to the Band which ought to be roll'd about the Body; and this sort of Bandage is to be supported with a Scapulary.

C H A P. X.

Of the Fracture of the Coccyx or Rump-bone.

THIS Bone is usually broken by falls, and sinks into the inside; so that to reduce it, the Fore-finger of one Hand is to be put into the

Anus

Anus or Fundament as far as the Fracture, to thrust it back again into its place, whilst the other Hand serleth it on the out-side.

The Dressing and Bandage.

These are the same with those in the Fracture of the *Os Sacrum*; but the Patient must be obliged to lie on one side, and to sit in a perforated Chair, when he hath a mind to rise.

If the *Os Innominatum* be broken, the *Spica* is to be used after it hath been dress'd, of which Bandage we have given an Account in the Fracture of the Clavicle.

C H A P. XI.

Of the Fracture of the Humerus or Arm-Bone.

TO set this Bone, a strong Extension is to be made, if the two Ends cross one another; to which purpose the Patient is to be plac'd on a little Stool or Seat, and supported by a Servant, two other Assistants being employ'd to draw, one at the upper-part, and the other at the lower, above the Elbow, and not beneath it. In the mean time the Operator reduceth the two Bones, by closing 'em on all sides with the Palms of his Hands, and afterward prepareth

The Dressing and Bandage.

It is necessary at first to lay round the Fracture a Bolster steep'd in some proper Liquor, as Claret or *Oxyeratum*, then three several Bands are to be taken, three or four Fingers broad, and an Ell and a half long: The first of these is to be laid upon the Fracture, round which are made three very streight Circumvolutions; then it is to be carry'd up with small Rollers to the top of the Arm, and stay'd round the Body. The second Band being apply'd to the Fracture; on the side opposite to the first, two Circumvolutions are to be made upon the Fracture, so that the same Band may be brought down along the whole length of the Arm, making divers Rollers, and at last stay'd below the Elbow, which, nevertheless, it must not cover. Afterward four Longitudinal Bolsters must be laid upon the Fracture round about the Arm, which are to be kept close with a third Band; it being of no great Importance whether the Application of this third Band be begun at the top or at the bottom; but it may be stay'd round the Body, or else beneath the Elbow. The Arm ought also to be encompassed with two thick pieces of PASTE-board made round at the ends, and of the length of the Arm, but they must not cross one another. These PASTE-boards are to be fasten'd with three Ribbands, and the Arm is to be put into a Scarf made with a large Napkin, which is to be first apply'd in the middle under the Arm-pit, the Arm resting upon it, so that
the

the four ends may be raised up, and fastned to the opposite Shoulder ; but the Hand must lie higher than the Elbow.

C H A P. XII.

Of the Fracture of the Bones of the Cubit.

IF both the Bones of the Cubit be broken, a stronger Extension is to be made than if only one of 'em were so hurt ; to which purpose a Servant must grasp the Arm above the Elbow with both his Hands, and another must hold it above the Wrist, whilst the Surgeon sets the Bones with the Palms of both his Hands, till no unevenness be any longer felt in the Part.

The Dressing and Bandage

Are the same with those of the Fracture of the Arm ; but the Bands which are carry'd upward are to be stay'd above the Elbow. If the Patient be desirous to keep his Bed, it is convenient that his Arm be laid upon a Pillow, the Elbow lying something higher than the Hand.

C H A P. XIII.

Of the Fracture of the Carpus or Wrist-Bone.

IF the Bones of the *Carpus*, or those of the *Metacarpus* be fractur'd, a Servant must hold the Arm above the Wrist, and another the Fingers; whilst the Operator sets the Bones in their place, so as no unevenness may appear in the Part.

The Dressing and Bandage.

The Fracture of the Wrist is to be prepar'd with a Band roll'd with one Head, being six Ells long, and two Fingers broad; so that three Circumvolutions are to be made upon the Wrist; the Band is to be pass'd over the Hand, between the Thumb and the Fore-Finger, making the Figure of KY upon the Thumb. Then after having made divers Edgings on the *Carpus*, a Bolster is to be applied, with a little piece of Paste-board of the same shape with the Wrist; several Edgings are to be made on the top of the Cubit to stay the Band above it; and the Arm is to be put into a Scarf.

C H A P. XIV.

Of the Fracture of the Bone of the Metacarpus.

TWO Servants are to hold the Hand, after the same manner as in the setting of the *Carpus* or Wrist-bone, whilst the Surgeon reduceth the broken Bone, by fixing it in its natural Situation.

The Dressing and Bandage

Are made with a Band roll'd up with one Head, five Ells long, and two Fingers broad : This Band being fastned to the Wrist, with a Circumvolution, is to be laid on the *Metacarpus*, between the Thumb and the Fore-finger, and the Figure of X is to be made upon the Hand. Then the forming of Rollers and X's is to be continued till the *Metacarpus* be cover'd ; a Bolster and Paste-board are to be laid upon the same ; as also one in the Hand, of the Shape of the Part : The inside of the Hand is to be trimm'd ; and the whole Contexture is to be cover'd as before, with Rollers, which are continu'd till above the Elbow, where the Band is stay'd.

C H A P. XV.

Of the Fracture of the Fingers.

A Light Extension is to be made in the Fingers to reduce 'em, and a small Dressing is to be prepar'd for every Finger, almost like that of the Arm. The Fingers are to be somewhat bent, and the inside of the Hand is to be trimm'd with a Bolster, to retain 'em in this Situation. The Bolster is also to be stay'd with a Band, and the Arm to be put into a Scarf.

C H A P. XVI.

Of the Fracture of the Thigh.

If the Thigh-bone be broken near its Head, the Fracture is very difficult to be discover'd; but if the Bones pass one over another, it may be soon known, because the hurt Leg will be shorter than the other. Therefore a very great Extension is to be made; and if the Hands are not sufficient for that purpose, recourse may be had to Straps and Engines. In the mean time the Operator is to lay his Thumbs upon the fractur'd Bone, to thrust it back into its place, and afterward apply

The

The Dressing and Bandage.

The Cavity of the Thigh is to be fill'd with a thick Bolster, of the length of its bending; and three Bands four Fingers broad are to be provided, the first being three Ells long, and the second four as well as the third: Then three Circumvolutions are to be made upon the Fracture with the first Band, carrying it up with small Rollers, and is to be stay'd round the Body. The second Band is to make two Circumvolutions upon the Fracture, and is to be brought down with small Rollers, which are terminated above the Knee; or else they may be continu'd all along the Leg; it is also to be pass'd under the Foot, and to be drawn up again upon the Leg: Then a Bolster is to be applied to the lower part of the Thigh, being thicker at bottom than at top, to render the Thigh every where even; and four Longitudinal Bolsters are to be added, on which are laid Splints of the same length and breadth, which are to be wrapt up with a single Bolster. The third Band is to be roll'd upon these Splints, beginning at the bottom, and ascending with Rollers. Then two large Pastebords are to be used, which may embrace the whole Dressing, without crossing one another, being fastned with three Ribbands. Afterward, a Pair of Pumps is to be put under the Foot, and the Heel to be supported with a small Roll, the Thigh and Leg being laid in Junks, the inner of which is to extend to the Groin, and the outermost is to be somewhat longer: Two little Cushions

shions are also to be laid on each side below the Knee, and two others below the Ankles, to fill up the Cavities. These Cushions or large Bolsters are to lie between the Junks, and a thick Bolster is to be laid upon the Leg all along its length, as also one upon the Thigh. The Junks are to be bound with three Ribbands for the Legs and as many for the Thighs; the Knots being ty'd without, and on the side.

C H A P. XVII.

A Remark of Mons. Arnaud on a Fracture of the Thigh.

THE External Junk must go quite under the Arm-pit, and be wrapped in two large Napkins folded lengthways, one of which must pass over the Belly, and the other over the Breast.

To hinder the Patient from turning cross and sliding down towards the Feet of the Bed, you must plant a Stake into the Floor, underneath the Bed, and pass it through the Matting and Bed-clothes, so that it may be between the Patient's Legs. This ought to be as thick as the small of the Arm, and cover'd with some Stuff or other, that it may not hurt the Patient. And for greater Security, let it be ty'd with an equal Girth to the Patient's Thigh above the Knee, and let each Branch or Tail of the Girth pass on

on each side the Knee, exactly on the middle, and over two Pullies (fastned at the end of the Bed's-feet) and at the end of 'em let there be two Weights suspended to draw the Thigh, and keep it in a streight Posture. The Thigh must be wrapped round with a Bolster in the place where the Girth is, that it may not hurt it.

If you cannot or would not have this Weight or Stake, you must make use of Muffles, fastning one to the upper, and the other to the lower Part of the Thigh, and the end of the former to the Bed's-head, and the latter to the Bed's-feet.

Observe that these Muffles draw more or less strongly, and are more easie or troublesome as they consist of a greater or lesser Number of Pullies; and therefore that fastned to the lower end of the Thigh must not be so complicate as the upper one; that is, must have fewer Pullies, because it is this which must be loosen'd when the Patient complains they draw too hard.

C H A P. XVIII.

*Reflections, and a New Machine of Mons.
Arnaud, for curing the Rotula, fractu-
red transversely.*

W H E N a Piece of the *Rotula* fractur'd transversely, is drawn up by the Attraction of the Extensors of the Leg, it ought to be

be thrust with the Thumbs into its ordinary place.

In order to this, the Patient must not be laid down, as is most commonly done, but shou'd sit in a Chair, and have his Leg extended; because in this Posture the Operator has more Strength to thrust the *Rotula* down with his Thumbs.

If there were nothing farther required, for the Cure, but to keep the *Rotula* in its Posture, a common Bandage would be sufficient; but since this is never to be undone till the Cure be completed, for fear the *Rotula* would be drawn out of its Place by the Muscles; and since there is no part stands in more need of being embrocated than the great Tendons of the Hams in that part of the Semi Cylinder, Monsieur *Arnaud* has invented a New Machine to effect this without danger of the *Rotula's* flying up.

This Machine is made with a great and very thin Plate of Iron about a Foot long, bent round so as to form a hollow half Cylinder: It pretty well resembles half a Lanthorn without its Head, or being cut square at the end. You must make it lengthways, which must be placed under the Ham, a long Window like that of Horn Lanthorns, and must be shut with a Plate of Iron a little larger than the Aperture.

All along both Edges of this Cylinder there must be a rising three Inches broad. Lay the Patient's Leg in the middle, which goes half a Foot above and as much below the Ham. Lay on this Machine that is above the Patient's Knees, a thin Iron Plate more than four Inches broad, which being shap'd handsomely round, must be applied

applied on the Thigh, and one of its ends touch the upper edge of the *Rotula* to hinder it from rising.

This Plate on each side must have an Edge or Rising, which is to be applied on the Edges of the Semi-Cylinder, that is under the Ham, and kept on with a Screw. Lay another like Plate below the Knee, and let it just touch the inferiour Edge of the *Rotula*, which must be fasten'd like the other with Screws to the Cylinder to support the *Rotula* below the Knee. These Plates must come close to the Edges of the *Rotula*, and not pass over it; and this must be fasten'd so as to be put on or taken off at pleasure, that so the *Rotula* lying between them may be kept from stirring. These Plates must be lin'd on the inside with Bolsters for the better keeping down the *Rotula*. The large Bolster laid on the Knees must have one end of it ingag'd under the Plate which lies above the Knees, but must not be ingag'd under the Plate that lies below the Knees, that so it may be taken up when the Part is to be dress'd without taking off the Plates that support the *Rotula*.

Let two Bolsters be likewise laid within the half-Cylinder, which is under the Ham; but so that they only touch one another at the Ends in the middle of the Ham, and have only one of their Ends ingag'd between the half-Cylinder and the Leg, that so when the Plate under the Ham is taken, the Bolsters may fall down of themselves, and open a way to embrocate the Tendons. When that is done, put on the Plate again. The Description of this Machine is sufficient to instruct any ingenious Workman to make one.

Observe

Observe that when the *Rotula* is broke into divers pieces, you must press them down, and put each into its proper Place: For otherwise they would agglutinate each other in a wrong Position, and prove very inconvenient to the Patient after his Recovery whenever he should kneel down.

When these pieces of the *Rotula* are reduced into their places, you must keep them there by two good bits of Leather, three Inches broad laid Salterwise over the *Rotula*, fastening each end on the Plates of Iron, with Hooks made on purpose.

C H A P. XIX.

Of the Fracture of the Knee-Pan.

THE Knee-Pan is cleft or broken in divers pieces in its length, and cross-wise: If it be broken cross-wise obliquely, the two pieces fly out one from another; and on this Occasion a strong Extension is to be made; whilst the Surgeon at the same time thrusts back again the upper part of the Knee-Pan into its Place.

If the Knee-Pan be fractur'd in its length, no Extension can be made, because the pieces of the Bones remain in their place.

The Dressing and Bandage.

If the Knee-Pan be broken cross-wise, a Band is to be provided three Ells long, and two Fingers
Q broad,

broad, which may be roll'd with one or two Heads. The Application is to be begun above the Knee-pan; the Figure of X is to be made on the Ham, and a Circumvolution under the Knee; then the Band is to be continually carry'd up and down, till the Knee-Pan be intirely cover'd.

If the Knee-Pan be fractur'd in its length, that is to say, from the top to the bottom, the Uniting Band must be used, being two or three Ells long, and two Fingers broad, perforated in the middle. It is to be at first applied under the Knee, and one of the Balls is to be passed through the Hole; it must also be well closed, and divers Circumvolutions are to be made upon the Knee-Pan, to cover it intirely,

C H A P. XX.

Of the Fracture of the Leg.

IF the *Tibia* be only broken, it pushes into the Inside; But if both Bones be fractur'd, they are sometimes separated on both sides, or else they pass one upon another; and in this case the Leg is shorter than it ought to be. If the *Perone* be broken, it pushes to the outside

If one Bone be only fractur'd, so strong an Extension is not requisite as when they are both shatter'd, and is to be drawn only on one side; whereas the drawing ought to be equal on both sides when both Bones are concerned. Thus the Assistants are imploy'd in making the Extension;

Extension; the Surgeon performs the Operation by laying the Ends of the Bones exactly against one another; and they are known to be reduc'd when the great Toe remains in its natural Situation.

The Dressing and Bandage.

A simple Bolster dipt in a convenient Liquor is at first applied, and three Bands three Fingers broad are prepar'd, the first being two Ells long, the second three, and the third three and an half. Three very streight Circumvolutions are to be made upon the Fracture; the Band is also to be carried up with Rollers, and stay'd above the Knee. The Application of the second Band is to be begun upon the Fracture with two Circumvolutions; it is to be brought down with Edgings to pass under the Foot, afterward carried up again and stay'd where it is terminated. The Cavity of the Leg is to be fill'd with a Bolster thicker at the bottom than at the top; and there are to be laid on the four Longitudinal Bolsters, two Fingers broad, and as long as the Leg; to which are to be applied the Splints of a pliable and thin Wood: These are wrapt up with a simple Bolster, and strengthen'd with the third Band, which is applied indifferently, either at the top or bottom, opposite to the former; so that it is carried up, or else down with Edgings, and stay'd at its end. The whole is to be encompass'd with large Past-boards made round at the ends, which are not to cross one another, but must be streighter at the bottom than the top, and are to be ty'd with three Ribbands

or pieces of Tape, beginning at the Middle; so that the Knots be ty'd on the outside. Afterward the Leg is to be put into the Junks, and the Heel is to be supported with a Linnen Roll, to which are fasten'd two Ribbands that are ty'd upon the Junks. These Rolls are made with a small piece of Cloth, which is doubled and roll'd up at the Ends, in which is contain'd some Straw, and a little Stick in the middle, to make them stiff. The Foot is supported with a Pastboard or Wooden Sole, trimm'd with a Bolster, or small Quilt sew'd over it. Divers Strings are also fasten'd to the middle of the Sides of the Sole or Pump, which are cross'd to be join'd to the Junks; and another is fixed at the End of the Sole, which is ty'd to a Ribband that binds the middle of the Junk: These Junks are likewise fasten'd with three Ribbands, beginning with that in the middle, the Knots being without, and trimm'd with four Bolsters, that is to say, two on each side, to fill up the Cavities that are below the Knee, and above the Ankle. Lastly, the Leg is to be plac'd somewhat high, and a Cradle to be laid over it to keep off the Bed-clothes; the Junks must go over the Knee and Foot.

The Dressing of complicated Fractures

Of the Arms, Legs and Thighs, is made with a Bandage having eighteen Tails or Ends, in order to make which, a Linnen Cloth is to be taken of the length of the Part, and broad enough to encompass it: It is to be folded into three Leaves,

Leaves, and cut in three places on each side, leaving the middle plain; so that eighteen Tails or smalls Bands are form'd, every one of which will be four Fingers broad, the upper Tails being a little shorter than the lower. This Band of eighteen Tails is to be laid upon the Junks, and a Bolster is to be applied to it four Fingers broad, as long as the Junks. The Leg is laid upon this Bolster, and it keeps the Pus from falling on the Bandage.

When the Wound hath been dress'd, the Fracture must presently be wrapp'd round with one of the Tails, which ought to cross one another: Then after the Leg hath been bound with the first Tails, two Longitudinal Bolsters are to be applied to the side of it; and the other Tails are to be raised, with all the rest of the Dressing, which hath been described in the simple Fracture.

C H A P. XXI.

Excellent and Judicious Remarks of Monsieur Arnaud on Fractures of the Leg and Arm.

MONSIEUR Arnaud shew'd that the Roll put under the Heel to support it is insignificant, because it compresses the Tendons; but the best way is to use a small Roll of Cloth, which must be put under the Leg between the Heel and the Dressing, that is under the Tendon of *Achilles*.

He shew'd likewise that if after some time the Patient be tired with this, it may be taken off, and two false Junks made without a Stick or Straw, with a Band about two Inches broad, rolled with two Heads, which must support the two Ankles, while the Heel rests on that part of the Band which is between the three Heads. If after some time the Patient be fatigu'd, you may take this off and put on the former, shifting thus alternately for his Relief. If you chuse rather to make use of the Roll, you must have a longish Bolster or Cushion to fill up the Hollowness of the Leg on each side of the Tendon of *Achilles*.

He shew'd that the great Junks in which the Legs are laid, ought not to go above three Inches higher than the Knee. For if they should go to the upper end of the Thigh, that being thicker than the Leg, this could not be supported by the Junks, that is, if to support them, the Junks were brought close to the Legs, they would recede from the Thigh.

He shew'd farther, that a Pillow ought to be laid under the Ham, for fear of a Distortion, and that this Pillow should be thickest in the Hollow of the Ham.

He recommended very much the keeping the Foot streight with a Sole. Though this Posture be not natural to the Foot, since in sleeping it is bent, and is tired by being kept streight. The reason why this is done, is to keep the Tendon of *Achilles* from contracting it self, which would oblige the Patient to walk on the Tip of his Foot.

The Paffe-boards laid round the Leg must not be ingag'd under the Bands, because if the Patient should complain he is too closely bound, he cannot be relieved but by undoing the Bandage, which may do considerable Mischief. Whereas if the Paffe-boards are ty'd with two or three Ribbands only, they need only be slacken'd to give ease to the Part.

The Bones of the Cubit or Leg must by no means be prest by the Bandage, for fear, instead of being kept together, they fall into the Interstice between the Bones. The Arm both within and without must be covered with Longitudinal Bolsters, which rise higher than the Bones, that the Bandage may rest on this, and not press on the Bones.

If there is but one Bone in the Arm broken, there is no need the above-mentioned Bolsters should rise above the whole Bone : For this may be cover'd with a Bolster laid lengthways, and the Bandage supported on it.

C H A P. XXII.

Of the Fracture of the Bone of the Foot.

THE Reduction of the Bone of the Foot is perform'd after the same manner as that of the Hand.

The Dressing and Bandage

Are made with a Band roll'd with two Heads, being three Ells long, and two Fingers broad: The Application of it is begun with a Circumvolution above the Ankles; it is pass'd on the Foot, and in like manner makes a Circumvolution round it: Afterward the same Band is cross'd over the *Metatarsus*, upon which are made some Folds in form of a *Rhombus* or Diamond; as also on the Toes, and it is stay'd above the Ankle Bone; or else it is carry'd up along the Leg, to be stay'd above the Knee. This Bandage serves for all Fractures of the Bones of the Foot, and is called the *Sandal*.

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CHAP. I.

Of the Luxation of the Nose.

THE Bones of the Nose may be separated from that of the Forehead by a Fall, or some violent Blow; and the Surgeon in order to set 'em, at first lays his Thumb upon the Root of the Nose; then he introduceth a little Stick trimmed with Cotton, into the Nostrils, and by the means thereof puts back the Bones into their place.

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The

The Dressing and Bandage

Are the same with those that have been already described in the Fracture of the Bones of the Nose.

C H A P. II.

Of the Luxation of the Lower-Jaw.

THE Jaw may be luxated either on both sides, or only on one. When the Dislocation happens on both sides, it hangs over the *Sternum* or Breast-bone, and the Spitte runs abundantly out of the Mouth: To reduce it, the Patient must sit down, and his Head is to be supported by a Servant; then the Operator or Surgeon having wrapt up his two Thumbs, puts 'em into the Mouth upon the Molar Teeth, his other Fingers lying under the Jaw, which is to be drawn down by raising it up, having before set two small Wooden Wedges upon the two Molar Teeth on both sides of the Jaw, lest the Surgeon's Fingers should be hurt, as the Bone is returning to its place.

If the Luxation be forward, a Band or Strap is to be put under the Chin, an Assistant having his Knees upon the Patient's Shoulders, where he is to draw the Strap upward, to facilitate the Extension; which the Surgeon makes with his Hands, at the same time thrusting the Bone back again into its place.

When

When the Jaw is luxated only on one side, the Chin stands a-crofs, and the dislocated side is depress'd, a small Cavity being perceived in it, and a rising on the other side; so that the Mouth cannot be shut close, but remains somewhat open, the lower Teeth appear farther out than the upper; and the Canine or Dog-Teeth lie under the Incisive. This Luxation is reduc'd by giving a blow with the Hand upon the luxated Bone which is sufficient to cause it to re-enter its natural Place.

The Dressing and Bandage

Are altogether the same with those used in the Fracture of the Bones of the lower Jaw.

C H A P. III.

Of the Luxation of the Clavicle.

THE *Clavicle* is oftner loosen'd from the *Acromion* than from the *Sternum*; when it hath left the former the Arm cannot be lifted up; the *Acromion* makes a Prominence, and the *Clavicle* descends downward, a Cavity appearing in its place. To reduce this Luxation, the Patient must be laid down, and some Convex Body put between his Shoulders: both which are to be press'd backward, to raise up the *Clavicle*: Afterward he is to be set in a Chair, that his Arm may be drawn backward, whilst the Surgeon

geon is imploy'd in pressing the Clavicle and *Acromion*, to join 'em together.

The Dressing and Bandage

Are the same with those that we have already shewn, in treating of the Fracture of the Clavicle.

C H A P. IV.

Of the Luxation of the Vertebrae.

IN the Luxation of the *Vertebrae* of the Neck, the Head stands to one side, and the Face is swell'd and livid, with a difficulty of Respiration.

To reduce this Dislocation, the Patient is to be set upon a low Seat, an Assistant leaning on his Shoulders, to keep his Body steady, whilst the Surgeon or Operator draws his Head upward, and turns it from one side to another: Then if the Accidents or Symptoms cease, the Cure is perform'd; so that Fomentations may be applied to the Part; and the Patient being laid in his Bed, he must take care to avoid moving his Head.

When the *Vertebrae* of the Back or Loins are luxated on the inside, a sinking of the Bone is soon perceiv'd; whereupon the Patient being laid on his Belly, the Extension is made with Napkins pass'd under the Arm-pits, and upon the *Os Ileum*, whilst the Surgeon with a strong Extension

ension makes some Efforts on the Spine, endeavouring to draw back the *Vertebrae*. If that be not sufficient, an Incision is to be made upon the *Apophysis Spinosa* of the *Vertebrae*; so that after having laid open this Process of the Bone, it may be taken out with a pair of *Forceps*. Then the Wound is to be dress'd with Pledgits, a Plaister, and a Napkin, which must not be bound too close for fear of pushing back the Spine.

When the *Vertebra* is luxated on the outside, a Prominence appears; so that to reduce this Dislocation, the Extension is to be made as before, the Patient lying in like manner upon his Belly; but in order to push back the *Vertebra* two little Sticks, trimmed with Linnen-Cloth, are to be prepar'd, and laid along the two sides of the Spine of the *Vertebra*; yet these Sticks ought to be thick enough to remain more elevated than the Spinal Process, and a large Wooden Roller is to be often roll'd upon 'em, which by its turning backward and forward, may thrust the *Vertebrae* inward: so that when all the *Vertebrae* are of an equal height, the Reduction is finish'd. If the *Vertebra* are luxated on the side, the same Extensions are to be made, and the Prominence is to be push'd, to re-establish the *Vertebra* in its place.

The Dressing and Bandage.

The Dressing is prepared by laying two thin Plates of Lead on each side of the Spinous Process of the *Vertebra*, to maintain it in its Place, and a long Bolster over 'em. The proper Bandage is the *Quadrige*, which hath been before described in treating of the Fractures of the Breast-bone.

C H A P.

C H A P. V.*Of the Luxation of the Coccyx or
Rump-bone.*

IF the *Coccyx* be sunk on the inside, it is to be raised with the Fore-finger of the Right hand put into the *Anus* ; and if the Luxation be on the outside, it may be gently thrust back again. An Account of its proper Dressing and Bandage hath been already given in the Fracture of the *Coccyx*.

C H A P. VI.

Of the Bunch.

THE *Bunch* is nothing else but an exterior Luxation of the *Vertebrae*, and for the Cure thereof it would be requisite to keep Emollients for a long time upon the *Vertebrae* to loosen the Ligaments, and to wear Iron-Bodice ; which in compressing the *Vertebrae* by little and little, might perhaps drive 'em back into their natural Place.

C H A P.

C H A P. VII.

Of the Luxation of the Ribs.

THE Ribs are luxated either on the outside, or on the inside : If they be dislocated on the inside, a Cavity is perceived near the *Vertebrae*, the Patient drawing his Breath with Pain, and not being able to bend his Body.

When the Luxation is on the outside, and happens in the upper Ribs, the Patient's Hands are to be hoisted upon the top of a Door, to raise up the Ribs, whilst the Surgeon presseth the Prominence of the Rib to restore it to its place.

When the lower Ribs are luxated, the Patient must be obliged to stoop, laying his Hands upon his Knees, and the Prominence of the Bone is to be thrust back.

If a Rib be luxated on the inside, an Incision is to be made to draw it out with the Fingers.

The Dressing and Bandage

Are the same with those that are used in the Fracture of the Ribs.

C H A P. VIII.

*Of the Sinking of the Xiphoides, or
Sword-like Cartilage.*

TO raise up the *Xiphoid Cartilage*, it must be fomented before for some time with Oil of Turpentine, or other Fomentations, made with Aromaticks; then the Patient is to be laid upon his Back, with a Convex Body underneath, and the Shoulders and sides of the Breast are to be press'd to lift up the Cartilage. When this Operation is not sufficient, dry Cupping-Glasses are usually applied till the Part be elevated, and a strengthening Plaister is afterward laid upon it.

C H A P. IX.

*Of the Luxation of the Humerus, or
Arm-Bone.*

THE Head of the *Humerus* generally falls under the Arm-pit, so that the luxated Arm becomes longer than the other. The *Acromion* appears pointed on the outside; the Elbow is turn'd from the Ribs, and cannot be mov'd without great Pain. To reduce this Bone, the Patient is to be set upon a low Seat, or else on
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the Ground, whilst some Person supports his Body with a Napkin : In the mean time the Surgeon must lay hold on the upper part of the *Humerus*, a Servant kneeling behind him, who is to hold the Patient's Arm above the Elbow, which is to pass between the Surgeon's Legs, and is to be drawn down by the Assistant as much as is possible, whilst the Surgeon in like manner draws the Arm, to remove the head of the Bone out of the place where it was stop't ; insomuch that the Bone sometimes makes a noise in re-entring its Cavity.

Or else the Patient's Arm may be laid upon the Shoulder of a taller Man than himself, who is strongly to draw the luxated Arm upon the fore-part of the Breast ; during which time the Operator must push the Head of the *Humerus*, and thrust it into its Cavity.

Otherwise the Patient may lie on the Ground, a Tennis-Ball being put under his Arm-pit, which a Servant must draw strongly with a Handkerchief pass'd under the Shoulder, whilst another Assistant stands behind the Patient, to thrust down the Shoulder with his Foot ; at the same time the Surgeon sitting between the Patient's Legs, must push strongly with his Heel the Ball that lies under the Armhole.

Or else a thick Battoon or Leaver may be laid on the Shoulders of two Men, after a Tennis-Ball hath been nail'd on the middle of it ; otherwise a Bunch may be made therein, and cover'd with Linnen Cloth ; two Wooden Pins being also fix'd on each side of the Ball : Then the Patient's Arm-pit is to be set between those two Pins, and upon the Ball, where he is to remain hanging,

hanging, whilst his Arm is pull'd down by main force. The same thing may be done by laying the Patient's Arm-pit upon a Door, or else upon the Round of a Ladder.

The Dressing and Bandage.

A little Ball of Linnen is to be laid under the Arm-pit, and underneath a Bolster with four Heads, which are cross'd upon the Shoulder; as also a Bolster under the sound Arm-hole, that it may not be gall'd by the Bandage *Spica*, the Nature of which we have shewn in treating of the Fracture of the Clavicle.

CH A P. X.

Of the Luxation of the Elbow.

WHEN the Elbow is luxated on the inside, the Arm flies out, and the Hand is turned outward; but in the Luxation on the outside, the Arm is shortned: If the Luxation be Lateral, a Prominence appears in the dislocated, and a Cavity in the opposite Part.

To reduce the Internal Luxation, the *Humerus* and *Cubitus* are drawn, and at the same time the Surgeon bends the Elbow, by carrying the Hand towards the Shoulder; or else a Tennis-Ball may be laid in the fold of the Elbow, and the Arm drawn towards the Shoulder.

For

For the External Luxation, the Extension is to be made, whilst the Surgeon thrusts back the Elbow into its place : or else a round Stick may be taken, and trimmed with Linnen-Cloth, with which the Bone is to be push'd back into its place during the Extension. This Stick may be also used in the reducing of the Internal Luxation.

For the Lateral Luxations, the Extension may be made in like manner ; the Surgeon at the same time thrusting back the Bone into its natural Situation.

The Bandage

Is made with a Band five Ells long, and two Fingers broad, roll'd with one Ball : The Application of it is begun with a Circumvolution at the lower part of the *Humerus*, thence it is passed over the bending of the Arm ; a Circumvolution is also form'd in the upper part of the Cubit, and an X on its bending. Afterward the Edgings are continued upon the Cubit, and the X's in the inside of the Arm, till the Cubit be intirely cover'd : The Band is likewise carry'd up to the top of the Arm with Edgings, and stay'd round about the Body. The Patient must be obliged to keep his Bed, or else his Arm may be put in a Scarf, after the same manner as in the Fracture of the Arm.

C H A P. XI.

Of the Luxation of the Wrist.

IF the Luxation be Internal, the Hand is turn'd back to the outside, so that for the Reduction thereof, it would be requisite to cause the back of the Hand to be laid upon a Table, and the Extension to be made by drawing the Cubit and Hand, whilst the Surgeon takes care to press the Prominence.

If the Luxation be External, the Hand is bend'd on the inside; so that to reduce it, the inside of the Hand is to be laid upon a Table, and the Surgeon is to press it after the Extension.

If the Luxation be on the sides, the Hand is turn'd to one side; so that the Extension must be made, and the Hand turn'd on the side opposite to the Luxation. But the Fingers are usually drawn one after another, to the end that the Tendons may be set again in their Place.

The eight Bones of the *Carpus* may be in like manner dislocated both on the inside and without; and to set 'em right, the Hand is to be laid upon a Table, and the Extension to be made, so as to press the Protuberances on the inside, if the Luxation be Internal, and on the outside if it be External.

The Bandage

Is made with a Band six Ells long, and two Fingers broad; so that three Circumvolutions may be made upon the Luxation; as also divers Edgings in passing through the inside of the Hand between the Thumb and the Fore-finger, and in forming the Figure of X upon the Thumb; after having made many Edgings upon the Wrist. Two pieces of PASTE-board are also to be laid on the sides of the Wrist, which are bound with the same Band; and the Hand is to be kept open with a Linnen-Ball, to keep the Fingers in their Situation. Then the Band is to be pass'd above, to strengthen it, and carry'd up with Edgings the whole length of the Cubit, to be stay'd below the same Elbow.

C H A P. XII.

Of the Luxation of the Fingers.

IF the Fingers be luxated, it is necessary to make an Extension to reduce 'em, and afterward to use the following

Bandage.

If the Luxation be in the first Articulation or Joint, the Bandage *Spica* is to be applied, being made of a Band roll'd with one Head; an
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Ell long, and an Inch broad : It is begun with Circumvolutions round about the Wrist, and brought over the Luxation in passing between the Fingers. These Circumvolutions are also continued to form a *Spica* upon the Luxation, and the Band is stay'd at the Wrist.

If all the first *Phalanges* were dislocated, it would be requisite to make as many upon every *Phalanx*, and with the same Band : This sort of Bandage is call'd the *Demi-Gantlet*.

C H A P. XIII.

Of the Luxation of the Thigh.

THE Luxation which most commonly happens in this Part, is the Internal ; so that a Protuberance appears on the Hole of the Os *Pubis* ; the indisposed Leg is longer than the other, and the Knee and Foot turn'd outward ; neither can the Thigh be any longer bended, or drawn near the other.

If the Luxation be external, the Leg becomes shorter than the other, the Knee and Foot turning inward, and the Heel to the outside.

When the Luxation is on the fore-part, a Tumour ariseth in the Groin, so that the Patient cannot draw his Thigh toward the other ; nor bend the Leg ; his Body resting only upon the Heel.

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If the Luxation be Posterior, a Tumour is felt in the Buttocks with great Pain, and the Leg is shorter than it ought to be : There also appears a sinking in the Groin, the Leg is lifted off from the Ground, and the hurt Person is apt to fall backward.

To reduce the Internal Luxation, the Patient is to be laid with his Back upon a Table, to which is fixed a thick Wooden Pin, about a Foot long, which is to be set between his Thighs, to detain his Body when his Legs are drawn down ; then a Strap is to be pass'd above the Joint of the Thigh, to draw the *Iscion* upward, and the Thigh is to be drawn down with another Strap fasten'd above the Knee : In the mean while the Surgeon thrusts the Thigh upward, to cause its Head to re-enter its Cavity, the Straps being somewhat loosen'd in the time of the Reduction to facilitate the Operation.

To reduce the external Luxation, the Patient is to be laid upon his Belly ; and the drawing to be performed after the same manner as we have even now shewn, whilst the Thigh is thrust from the outside inward, to cause the Bone to re-enter its Cavity.

In reducing the Anterior Luxation, the hurt Person is to be laid upon the side opposite to the Luxation, and Extensions are to be made, by drawing both upward and downward, as before : Then the Head of the Bone is to be forc'd, by the means of a Ball thrust strongly with the Knee, in drawing the luxated Bone toward the other.

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The Posterior Luxation is thus reduc'd: The Patient being laid upon his Belly, the double Extension is to be made, and his Knee drawn outward, to set the Bone in its place. After the Operation hath been perform'd, a Bolster is to be applied, steep'd in Spirituous Medicaments; and the Bandage called *Spica*, of which we have given an Account in treating of the Luxation of the Shoulder.

C H A P. XIV.

Of the Luxation of the Knee.

WHEN the *Tibia* is luxated behind, its Prominences are in the Cavity of the Ham, and the Leg flies off, or is bended. If the same *Tibia* be dislocated on the Side, a kind of Tumour appears in the luxated Side, and a Sinking in the opposite. But if the *Condylus* of the *Tibia* remains in the inside, the Leg turns outward; and if it be in the outside, it turns inward.

The Posterior Luxation is reduc'd by obliging the Patient to lie upon his Belly, whilst the Surgeon during the Extensions bends the Leg, in drawing the Heel toward the top of the Thigh.

If the *Tibia* be luxated on the side, the usual Extensions are to be made, and the Bone is to be push'd with the Knee.

If the Luxation were in the fore-part, it would be requisite to lay the Patient upon his Back, to make the Extensions, by drawing the Thigh and Leg, and to press the protuberant Parts.

The Bandage

Is prepar'd with a Band three Ells long, and two Fingers abroad, roll'd with two Balls : A Circumvolution being at first made above the Knee, an X must be made underneath, and a Circumvolution above it ; then the Band is carry'd up again over the Knee, making Edgings and X's underneath, till the Knee be intirely cover'd.

C H A P. XV.

*Of the Luxation of the Rotula, or
Knee-Pan.*

THE Knee-Pan is luxated by starting upwards : and to reduce it, the Patient's Leg must be held streight, whilst it is thrust back into its Place with the Hands. Then he must be oblig'd to keep his Bed ; and the same Bandage is to be apply'd with that which hath been describ'd for the Luxation of the Knee.

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If the *Perone* or *Fibula* be remov'd from the *Tibia*, the sides of the Foot are to be press'd, to draw it back again : and it may be kept close with the Bandage, which is appropriated to the Fractures of the *Tarsus*.

The *Astragalus* may be also luxated in the fore-part ; so that the Operator ought to thrust it back into its Place, and to make use of the Bandage which we have prepar'd for the Fracture of the Foot.

The *Calcaneum* sometimes flies off from the *Astragalus* both in the Inside and without ; and the Bones of the *Tarsus*, *Metatarsus*, and Toes are likewise apt to be luxated. But a little Circumspection is only requisite to reduce all these Dislocations.

C H A P. XVI.

An Excellent Discourse on the Rickets, deliver'd by Monsieur Arnaud in the Amphitheatre of St. Cosmus.

M. *Arnaud* shew'd in the Amphitheatre of *St. Cosmus* on the Bones of Ricketty Children, which are always larger below than above, that they almost ever break in the Places where they bend, and agglutinate again when they grow, and strengthen, which he prov'd by exposing them broken to the View of the
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Company, or shewing the Circular Lines in the Places where they knit again together. He shew'd these Bones warp to that side to which they naturally bend, as toward the lower end of the Spine outwardly, towards the Anterior part of the Bone of the Thigh, &c. or if they are naturally streight, as the Bones of the Leg or Arm, they are bowed on the side opposite to the Contraction of the strongest Muscles. The Arm-bone, for instance, is bowed to the outside because the strongest Muscles lying on the inside, draw its Extremities together as the String of a Bow.

When very young Children have their Bones thus bow'd, Splints may do well enough to bring them right; but when they come to Three or Four Years old, you must make use of a Boot.

This must go but half round the Leg. The hinder part must be open to put the Leg into the Machine, which must be closed behind with three Straps fasten'd at convenient Distances.

This Boot has two Elongations on each side which are pretty narrow. The Stirrup which passes under the Child's Foot is a Leather, which is fasten'd to each side of the Boot, to the upper End of this a Knee-piece must be lac'd.

This is made of Tin, and must have a Hole in the middle for the Knee to pass thro'. It must be accommodated so as to follow the Motion of the Knee, and give way for its Flexion and Extension when the Child walks.

Within this there must be another small Boot of Tin like the former. This must be lined on the Inside with Fustian, and have a Hole in the Place where the Curvature of the Leg is, to prevent compressing it, and to give it way to go and support it self on the External Boot, and its Lining.

This Description is sufficient to give any Workman an Idea of this Machine.

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A

TREATISE

OF

Medicinal Compositions.

Necessary for a

SURGEON.

CHAP. I.

Of Balsams.

The Balsam of Arcæus.

TAKE two Pounds of the Suet of a He-Goat, *Venice Turpentine* and Gum *Elemi*, a Pound and a half of each; and of Hog's-Lard one Pound. After the Gum *Elemi*, being cut into small Pieces, hath been melted over a very gentle Fire, add to it the Turpentine, Goats-Suet and Swines-
 R 3 Grease

366 *The Compleat Surgeon.*

Grease; and when all these Ingredients are well dissolv'd, strain the Liquor through a new Linen-Cloth, to separate the Scum and Dregs from it; then let the whole Mass cool, and the Balsam is made.

This Balsam serves to incarnate and consolidate all sorts of Wounds and Ulcers: It is likewise used in Fractures and Dislocations of the Bones; as also to cure the Contusions and Wounds of the Nerves.

The Balsam of Spain.

Take pure Wheat, the Roots of *Valerian* and *Carduus Benedictus*, of each one Ounce, and beat 'em well in a Mortar with a Pint of White-Wine; strain the whole Composition into an Earthen Vessel glaz'd, having a narrow Mouth; stop up the Vessel, and set it upon hot Embers during twenty four Hours: Then add six Ounces of *St. John's-Wort*; set the whole Mass in *Balneo Maria* till the Wine be consum'd, and let it be strain'd and squeez'd. Afterward add two Ounces of Frankincense well pulveriz'd, with eight Ounces of *Venice Turpentine*, mixing 'em together over a gentle Fire, and the Balsam will be made.

This is the Balsam which was always used by *Fabricius ab Aquapendente*, and is excellent for all kinds of Wounds, even for the Nervous, which (as it is avouch'd by some Persons) may be cur'd by it within the space of twenty four Hours. But the Wound must be at first wash'd with good White-Wine cold, and afterward anointed

anointed with this Balsam well heated. If the Wound be deep, it may be syringed with the same Balsam very hot, and the sides of it anointed when drawn together. Then a Bolster steep'd in the Balsam is to be apply'd to the Part, and upon that another Bolster soak'd in the Lees of Wine; as also over this last another dry Bolster.

The Green Balsam.

Take Linseed Oil and that of Olives, of each one Pint; one Ounce of Oil of Bays; two Ounces of *Venice* Turpentine, half an Ounce of the distill'd Oil of Juniper-berries, three Drams of Verdegrease, two Drams of Succotrin Aloes, two Drams and a half of White Vitriol, and one of the Oil of Cloves.

Having made choice of the best Olive and Linseed-Oil well purify'd and mingl'd together in a Skillet or Pan over a very gentle Fire, let the Turpentine and Oil of Bays be incorporated in it; then having taken off the Pan from the Fire, and left the Liquor to be well cool'd, let it be intermix'd by little and little with the Verdegrease, the White Vitriol and the Succotrin Aloes beaten to fine Powder: Afterward the distill'd Oils of Cloves and Juniper-berries being added, and the whole Composition well mingled together, the Balsam will be intirely compounded according to Art.

This is the Balsam that hath been so much talk'd of at *Paris*, and which many Quack-Salvers, pretending to the Arts of Physick and Sur-

gery, keep as a great Secret. Indeed it is very good for all sorts of Wounds, whether they be made by the Sword, or other Iron Weapons, or by Gun-shot. But it would be requisite at first to wash the Wound with warm Wine, then to anoint it with this Balsam very hot, and to apply Blisters that have been steep'd in it, as also a large Blister over the other, dipt in some Stryptick Liquor. This Balsam mundifies, incarnates and cicatrizes Wounds; being likewise good against the bitings of venomous Beasts, and fistulous and malignant Ulcers.

Samaritan Balsam.

Take an equal quantity of common Oil and good Wine, boil 'em together in a glaz'd Earthen Vessell, till the Wine be wholly consumed, and the Balsam will be made. I have mention'd this Balsam in particular, by reason of its simplicity, and in regard that it may be readily prepared at all times. It serves to mundifie and consolidate simple Wounds more especially those that are recent.

C H A P. II.

Of Ointments.

Unguentum Althææ.

TAKE of the Roots of *Althæa* or Marsh-Mallows, six Ounces; Linseed and Fenugreek-seed, and Squills, of each four Ounces; of yellow Wax, one Pound; Colophony and Rosin, of each one Pound; *Venice-Turpentine*, *Gambanum*, and Gum *Hederæ* pulveriz'd, two Ounces of each. The Marsh-Mallow Roots being newly gather'd, are to be well wash'd and slic'd, as well as the Squills. After they have been put into a Copper Pan or Skillet, tinn'd over on the inside, together with the Linseed and Fenugreek-seed, and a Gallon of fair Water pour'd upon 'em, the whole Mass is to be macerated during twenty four Hours, over a very gentle Fire, stirring the Ingredients from time to time with a Wooden *Spatula*: Thus they are to be boil'd slowly, often reiterating the stirring, till the Mucilages are sufficiently thicken'd; then, after having well squeez'd and strain'd 'em through a strong and very close Cloth, and mingl'd 'em with the prepar'd Oil, they are to be boil'd together again over a very gentle Fire, till the superfluous Moisture be wholly consum'd: Afterward having strain'd the Oil again, the yellow Wax, Colophony,

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phony, and Rosin cut into small pieces, are to be melted in it; and if any Dregs appear at the bottom of the Pan, when the whole Mass is dissolv'd, it is to be strain'd a-new, or at least the pure Liquor must be separated from the gross or impure by Inclination, whilst it is as yet very hot. The Ointment must be stirr'd about with a wooden Pestle; and when it begins to grow thick, you may add the Turpentine, the *Galbanum* purify'd and thicken'd, and the Gum *Hedera* beaten to fine Powder, all which Ingredients were before incorporated together. Then the Ointment is to be continually stirr'd, till it be altogether grown cold.

This Ointment serves to moisten, mollifie and heat gently; it also allays the Pains of the Side, and soften Tumours, particularly the *Parotides*. It may be used either alone or with other Ointments or Oils.

The Mundificative Ointment of Smallage.

Take three handfuls of Smallage- Leaves, with Ground-Ivy, great Wormwood, great Centory, Germander, Sage, St. John's- Wort, Plantain, Milfoil, or Yarrow, Periwinkle, the greater Comfrey, the lesser Comfrey, Betony, Honey-suckle, Fluellin, Vervein, Knot-Grass, Adders-Tongue, and Burnet, of every one of these Plants two Handfuls; a Gallon of common Oil, white Pitch, Mutton-Suet, yellow Wax, and Turpentine, of each two Pounds.

Bruise all these Herbs in a Marble Mortar; let the Wax, white Pitch, and Mutton-Suet be cut into pieces, as also the Turpentine be melted in
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the Oil in a Copper Pan tinn'd on the Inside over a moderate Fire ; put the bruise'd Herbs in it, and cause the whole Mass to simmer together very slowly, stirring it about from time to time with a wooden *Spatula*. As soon as it shall be perceiv'd that the Oil of the Herbs is almost quite consum'd, the whole Composition is to be strain'd and strongly squeez'd. Then after having let the Ointment cool to draw off all the dregs and Moisture ; melt it over a very gentle Fire ; and after having left it a little while to cool again and thicken, you may add thereto Myrrh, Aloes, *Florence* Orris, and round Birth-wort pulveriz'd very fine. When all these Ingredients are by this means well incorporated, the Ointment will be brought to Perfection.

This Ointment is of singular Use to cleanse Ulcers ; as also to mundifie, cicatrize, and consolidate all sorts of Wounds.

The black or suppurative Ointment.

Take a Quart of common Oil, white and yellow Wax, Mutton-Suet that lies near the Kidneys, pure Rosin, Ship-Pitch, *Venice* Turpentine, of each half a Pound ; and of Mastick beaten to fine Powder, two Ounces ; let all that is capable of being dissolv'd, be melted in the Oil ; and add the Powder of Mastick to make an Ointment.

This Ointment searches and opens all sorts of Impostumes, as well as Carbuncles, and Pestilential and Venereal Bubo's. The use of the same Ointment is also to be continu'd after the opening of the Abscesses, till their perfect Cure be completed.

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Unguentum Rosatum.

Take Boar's-Grease well purify'd, and often wash'd, and Red Roses newly pick'd, of each four Pounds, with the like quantity of White Roses.

The thin Membrane or Skin which lies upon the Boar's-Grease, being taken away, it is to be cut into small pieces, well wash'd in fair Water, and melted in a glaz'd Earthen-pot over a very gentle Fire: The first Grease that is dissolv'd is to be strain'd through a Cloth, well wash'd, and mixt with the same quantity of thick Rose-buds well bruised. Then the whole Mass is to be put into a glaz'd Earthen-pot with a narrow Mouth, the Pot is to be well stopp'd, and set during six Hours in Water, which is between luke-warm and boiling-hot. Afterward it is to be boil'd an Hour, strain'd and strongly squeez'd. In the mean while four Pounds of white Roses newly blown are to be taken, well bruised, and mingl'd with the former Composition, the Pot being cover'd, which is likewise set for the space of six Hours in Water, between luke-warm and boiling hot: Then the Liquor is to be strain'd and strongly squeez'd. Lastly, after the Ointment hath been cool'd, and separated from its *Feces* or *Dregs*, it may be kept for use.

If it be desir'd to give a Rose Colour to this Ointment, it would be requisite a quarter-of an Hour before it be strain'd the last time, to throw into it two or three Ounces of *Orkanet*, which is to be stirr'd into the Ointment. If it be thought fit to retain the White Colour, and to produce
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the smell of Roses, it may be done with Damask-Roses without *Orkanes*. If you are desirous to give it the Consistence of a Liniment, you may add Oil of sweet Almonds to the quantity of a sixth part of its Weight.

This Ointment is a very good Remedy against all manner of external Inflammations, particularly against *Phlegmons*, *Erysipela's*, and Tetters; as also against the Head-ach and Hæmorrhoides or Piles.

Unguentum Album, aut de Cerussa.

Take three Pints of Oil of Roses, nine Ounces of white Wax, one Pound of *Venice Ceruse* or white Lead, and a Dram and a half of Camphire.

The Ceruse being pulveriz'd by rubbing the pieces upon the Cloth of a Hair Sieve turn'd upside down; the Powder is to be received on a Sheet off Paper laid underneath, and to be often wash'd with Water in a great Earthen Pan, stirring it about with a Wooden *Spatula*, and pouring of the Water by Inclination as soon as the Powder is sunk to the bottom. When the Water of these Washings grows insipid, the last Lotion is to be made with Rose-Water, leaving it for the space of five or six Hours, which being expired, it is to be pour'd off by Inclination, and the Ceruse must be dry'd in the Shade, covered with Paper. Then the broken Wax and prepar'd Oil is to be put into a glaz'd Earthen Pot, and the Pot into the boiling Bath. As soon as the Wax is melted, the Pot may be taken out of the Bath, and the dissolv'd Liquor stirr'd with a wooden Pestle

Pestle till it begins to grow thick. Afterward let the pulveriz'd Ceruse be infused, and the Ointment stirr'd about till it be almost cold. If you shall think fit to add Camphire, let it be dissolv'd in a little Oil, and incorporated with the Ointment when it is cold. The Whites of Eggs may be also well mixt with the Ointment, by stirring it about, to make an exact Union of the several Ingredients.

This Ointment is good for Burns, *Erysipela's*, the Itch, and many Distempers of the Skin; it allays the Itchings and Heats of Ulcers; it dissipates the Chafings and Redness that happen in the Bodies of Infants; it is of great efficacy in the Healing of Contusions, and it serves to consolidate and cool light Wounds.

Unguentum Ægyptiacum.

Take eleven Ounces of Verdegrease, fourteen Ounces of strong Vinegar, and twenty eight Ounces of good Honey.

Let the Verdegrease be put into a Copper-Pan or Skillet over a very gentle Fire; then bruise it with a wooden Pestle; work it well in the Vinegar, and strain the whole through a Hair Sieve. If a little Verdegrease remains on the Sieve, it is to be put again into the Skillet, bruised and beaten small therein, as before, with a Portion of the same Vinegar, straining it thro' the Sieve, till the unprofitable drossy Parts of the Copper be only left. Afterward, this Liquor is to be boil'd over a gentle Fire, with the Honey, stirring it about from time to time till it hath acquired the Consistence of a softish Ointment, and a very red Colour.

This

This Ointment consumes purrified Flesh, and the Superfluities of Ulcers and Wounds.

Unguentum Basilicon, or Royal Ointment.

Take yellow Wax, Mutton-Suet, Rosin, Ship-pitch, and *Venice* Turpentine, one Pound of each; with five Pints of common Oil.

Cut the Suet, Rosin and black Pitch into small Pieces, and let 'em be melted together, with the Oil, in a Copper-Pan, over a very moderate Fire; then after having strain'd the Liquor through a thick Cloth, let it be incorporated with the Turpentine, and the Ointment will be made.

It promotes Suppuration, and cicatrizes Wounds when the purulent Matter is drawn forth. It is sometimes used alone to Arm Pledgits; and sometimes mix'd with the Yolks of Eggs, Turpentine, and other Ointments, or with Oils and Plaisters:

A Cooling Cerate.

Take a Pint of Oil of Roses, and three Ounces of white Wax.

Let the whole Composition be put into a glaz'd Earthen Pot, and the Pot set in *Balneo Marie*, till the Wax be well dissolved in the Oil: then take the Vessel out of the Bath, and stir the Ointment with a Wooden Pestle till it be cooled; add Two ounces of Water and stir it about with the Pestle till it be imbib'd by the Cerate; let as much more Water be infused, and again the same Quantity, till the Cerate becomes very white, and hath been well soak'd with fresh Water.

Water. Afterward all the Water is to be pour'd off by Inclination, and separated as much as is possible from the Cerate, which may then be kept for use ; but some Surgeons cause an Ounce of Vinegar to be mixt with it.

This Cerate is usually laid outwardly upon all Parts that stand in need of cooling, and asswages the Pains of the Hæmorrhoids or Piles. It is also good for Chaps, sore Nipples, and other ill Accidents that happen in the Breast ; and is used for Burns, either alone, or mixt with other Ointments. Whensoever it is necessary to apply Dificatives and Astringents to any Part, this Cerate may be mixt with *Unguentum de Cerussa*.

An Ointment for Burns.

Take a Pound of Boars Grease, two Pints of White-Wine, the Leaves of the greater Sage, Ground and Wall-Ivy, Sweet-Marjoram, or the greater House-Leek, of each two Handfuls.

Let the whole Mass be boil'd over a gentle Fire, and having afterward strain'd and squeezed it, let the Ointment so made be kept for use.

C H A P. III.

Of Plaisters.

The Plaister of Diapalma.

TAKE three Pounds of prepar'd Litharge of Gold, three Pints of common Oil, two Pounds of Hog's-Lard, a Quart of the Decoction of Palm-Tree or Oak-Tops; four Ounces of Vitriol calcin'd till it become red, and steep't in the said Decoction. Having bruis'd or cut very small two handfuls of Palm-Tree or Oak-Tops; let them be boil'd slowly in three Quarts of Water till about half be consum'd; and after the whole Mass hath been well squeez'd, the strain'd Decoction is to be preserv'd. In the mean time the Litharge is to be pounded in a great Brass Mortar, and dilut'd with two or three Quarts of clear Water; but it will be requisite readily to pour out into another Vessel the muddy Water which is impregnated with the more subtil part of the Litharge, whilst the thicker remains at the bottom of the Mortar; whereupon this part of the Litharge will sink to the bottom of the Water, and the Litharge remaining in the Mortar is to be pounded again. Then having dilut'd it in the Water of the first Lotion, or in some other fresh Water, the muddy Liquor is to be pour'd by Inclination upon the subtil Litharge that remained in

in the bottom of the Vessel : Afterward you may continue to pound the Litharge to bruise it in the Water, to pour it off by Inclination, and to let the Powder settle till there be left only at the bottom a certain impure part of the Litharge, capable of being pulveriz'd, and raised amidst the Water. As soon as the Lotions are well settled, and care hath been taken to separate by Inclination the Water which swims over the Powder of Litharge ; this Powder is to be dried, and having weigh'd out the appointed Quantity, it is to be put as yet cold into a Copper-pan tinn'd within, and stirred about to mingle it with the Oil, Lard, and Decoction of Palm-Tree Tops. When these Ingredients have been well incorporated together, a good Charcoal Fire must be kindled in a Furnace, over which they are to be boiled, stirring it continually with a great Wooden *Spatula*, and constantly maintaining an equal degree of Heat during the whole time of their boiling. At last you may add the rubified Vitriol dissolved in a Portion of the Liquor that hath been reserved, if you would have the Plaister tinctur'd with a red Colour ; or else white Vitriol melted in the same Decoction, if it shall be thought fit to retain the Whiteness of the Plaister, which may be formed into Rolls, and wrapped up with Paper.

This Plaister is used for the Cure of Wounds, Ulcers, Tumours, Burns, Contusions, Fractures, and Chilblains, and is also used for Issues. If you mingle with it the third or fourth part of its weight of some convenient Oil, it will attain to the Consistence of a Cerate ; and this is that which is called *Dissolved Diapalma*, or *Cerate of Diapalma*.

The Plaister of Simple Diachylum:

Take of Marsh-Mallows-Roots peel'd, three Drams; Linseed and Fænugreek-seed, of each four Ounces; three Quarts of Spring-water; two Quarts of common Oil, and two Pounds of Litharge of Gold.

Let the Mucilages of Marsh-Mallows, Roots, and of the Linseed and Fænugreek-seed be taken, as hath been shewn in the making of *Unguentum Althææ*, and let the Litharge be prepared after the same manner as for the Plaister of *Diapalma*. Having at first well mix'd the Oil with the Litharge in a large Copper Vessel or Pan, tinn'd on the inside, being wide at the top, and tapering like a Cone toward the bottom, as also having afterward added and well incorporated the Mucilages, a moderate Charcoal Fire is to be kindled in a Furnace, upon which the Vessel is to be set, and the whole Mass is to be stirred about incessantly with a wooden *Spatula*; and as fast as is possible. A gentle Fire is to be maintained, and the Boiling and Agitation to be continued, till it be perceived that the Plaister begins to sink in the Pan; then the heat of the Fire must be diminish'd one half at the least; and it will be requisite only to cause an Evaporation by little and little, or the Superfluous Moisture that might remain in the Plaister, which being consum'd, is a Mark it is sufficiently boiled, especially if it have attained to its due Consistence and Whiteness.

This Plaister softens and dissolves hard Swellings, and even the Scirrhus Tumours of the Liver and Bowels; such are the Scrophulous or
King's

King's Evil Tumours, the old remains of Abscesses, &c.

The Plaister of Andreas Crucius.

Take two Ounces of Rosin, four Ounces of Gum *Elemi*, Venice Turpentine and Oil of Bays, of each two Ounces.

After having beat in Pieces the Rosin and Gum *Elemi*, they are to be melted together over a very gentle Fire, and then may be added the Turpentine and Oil of Bays. When the whole Mass hath been by this means well incorporated, it must be strained through a Cloth, to separate it from the Dregs. The Plaister being afterward cool'd, is to be made up in Rolls, and kept for use,

This Plaister is proper for Wounds of the Breast: It also mundifies and consolidates all sorts of Wounds and Ulcers, dissipates Contusions, strengthens the Parts in Fractures and Dislocations, and causeth the Serous Humours to pass away by Transpiration:

Emplastrum Divinum.

- Take of Litharge of Gold prepared, one Pound and an half; three Pints of common Oil; one Quart of Spring-water; six Ounces of prepared Load-Stone, Gum *Ammoniack*, *Galbanum*, *Opopanax*, and *Bdellium*, of each three Ounces; Myrrh, *Olibanum*, Mattick, Verdegrease, and round Birth-wort, of every one of these an Ounce and an half; eight Ounces of Yellow Wax, and four Ounces of Turpentine.

Let the Gum *Ammoniack*, *Galbanum*, *Bdellium*, and *Opoponax* be dissolv'd in Vinegar, in a little Earthen Pipkin; strain 'em thro' a coarse Cloth, and let 'em be thicken'd by Evaporation, according to the Method before observed in other Plaisters: Then prepare the Loadstone upon a Porphyry or Marble-Stone, and take care to bruise separately the *Olibanum*, the Mastick, the Myrrh, the round Birth-wort, and the Verdegrease, which is to be kept to be added at last. In the meanwhile, having incorporated cold the Oil with the Litharge, and mingled the Water with 'em, they are to be boil'd together over a very good Fire, stirring 'em incessantly, till the whole Composition hath acquired the Consistence of a somewhat solid Plaister, in which is to be dissolved the Yellow Wax cut into small Pieces. Afterward having taken off the Pan from the Fire, and left the Ingredients to be half cool'd, intermix the Gums, which have been already thicken'd and incorporated with the Turpentine; then Load-Stone mingled with the Birth-wort, Myrrh, Mastick, and *Olibanum*; and last of all the Verdegrease. Thus when all these Ingredients are well stirred and mix'd together, the Plaister will be entirely compounded; so that it may be made upon necessary Occasions.

This Plaister is efficacious in curing of all kinds of Wounds, Ulcers, Tumours, and Contusions; for it mollifies, digests, and brings to Suppuration such Matter as ought to be carry'd off this way. It also mundifies, cicatrizes, and entirely consolidates Wounds, &c.

C H A P. IV.

Of Cataplasms or Pulresses.

CATAPLASMS are usually prepared to assuage Pain; as also to dissolve and dissipate recent Tumours, and are made thus:

Take four Ounces and an half of white Bread, one Pint of new Milk, three Yolks of Eggs, one Ounce of Oil of Roses, one Dram of Saffron, two Drams of the Extract of *Opium*.

The Crumb is to be taken out of the inside of a white Loaf newly drawn out of the Oven, and to be boil'd with the Milk in a Skillet over a little Fire, stirring it from time to time with a *Spatula*, till it be reduc'd to a thick Pap. After having taken the Vessel off from the Fire, the three Yolks of Eggs beaten are to be put into it, and the Dram of Saffron pulveriz'd; to these Ingredients may be added two Drams of the Extract of *Opium* somewhat liquid, if the Pain be great.

Here is another Cataplasim proper to mollifie and to bring to Suppuration when it is necessary.

Take White-Lilly-Roots and Marsh-Mallow-Roots, of each four Ounces; the Leaves of common Mallows, Marsh-Mallows, Groundsel, Violet-Plants, Brank-Ursin, of every one of these

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Herbs one handful; the Meal of Line, Fænugreek, and Oil of Lilies, of each three Ounces.

The Roots when wash'd and slic'd, are to be boil'd in Water, and the Leaves being added some time after, the Boiling is to be continued till the whole Mass becomes perfectly tender and soft; at which time having strain'd the Decoction, beat the remaining gross Substance in a Stone Mortar, with a wooden Pestle, and pass the Pulp thro' a Hair Sieve turned upside down: Then let the Decoction and Pulp so strain'd be put into a Skillet, and having intermixt the Meal of Line, Fænugreek, and Oil of Lilies; let 'em be boil'd together over a gentle Fire, stirring about the Ingredients from time to time, till they be all sufficiently thicken'd. These two Cataplasms may serve as a Model for the making of many others.

CHAP. V.

Of Oils.

OILS are made either by Infusion or Expression.

Simple Oil of Roses made by Infusion.

Take two Pounds of Roses newly gather'd, and bruised in a Mortar; half a Pint of the Juice of Roses, and five Pints of common Oil: Let the whole Composition be put into an Earthen Vessel, headed and well stoppt, and then let it be exposed

led to the Sun during forty Days. Afterward let it be boil'd in *Balneo Mariae*; and having strain'd and squeez'd the Roses, let the Oil be kept for use.

Compound Oil of Roses made by Infusion.

Take a Pound of Red Roses newly gather'd and pound 'em in a Mortar; as also four Ounces of the Juice of Red Roses, and two Quarts of common Oil. Let the whole Composition be put into an Earthen Vessel leaded, the Mouth of which is narrow, and well stop'd; and then having expos'd it to the Sun during four Days, let it be set in *Balneo Mariae* for an Hour, and then strain'd and squeez'd. Afterward let this Liquor be put into the same Vessel, adding to it the Juice of Roses, and Roses themselves, in the same quantity as before: Let the Vessel be stop'd; let the Maceration, Boiling, Straining, and Expression be made in like manner as before; and let the same Operation be once more reiterated: Then let your Oil be depurated, and preserv'd for use.

These Oils repel and discuss Defluxions of Humours, suppress Inflammations, mitigate the Head-ach and *Deliriums*, and provoke to Sleep. They must be warm'd before the Parts are anointed with 'em; and they may be given inwardly against the Bloody-flux and Worms, the Dose being from half an Ounce to a whole Ounce. The Parts are also anointed with 'em in Fractures and Dislocations of the Bones, and *Oxyrodins* are made of 'em with an equal quantity of Vinegar of Roses.

Oil of Sweet-Almonds made by Expression.

Take new Almonds that are fat and very dry without their Shells, and having shaken 'em in a somewhat thick Sieve, to cause the Dust to fall off, let 'em be put into hot Water till their Skins become tender, so that they may be separated by squeezing 'em with the Fingers. Afterward having peeled them, let them be wiped with a white Linen-Cloth, and spread upon it to be dry'd: Then they are to be put into a Stone Mortar and pounded with a Wooden Pestle, till the Paste grows very thin, and begins to give Oil: This Paste is to be put into a little Linen Bag, new and strong, the mouth of which hath been well tied; and the Bag is to be plac'd between two Platines of Tin, or of Wood lined on the inside with a Leaf of Tin, squeezing the whole Mass gently at first; but afterward very strongly, and leaving it for a long while in the Press, that the Oil may have time to run out.

This Oil mitigates the Nephritick Colicks, remedies the Retention of Urine, facilitates Child-birth, allays the After-pains in Women newly deliver'd, and the Gripes in young Infants: It is taken inwardly fasting from half an Ounce to two Ounces; and it is used in Liniments to alluage and mollifie. The Oils of common Wall-Nuts and Small-Nuts, may be also prepared after the same manner as that of Sweet-Almonds.

The Oil of Bays.

Take as much as you please of Laurel or Bay-berries, well cleansed, perfectly ripe; and soundly bruised; let 'em be put into a Kettle, and boil'd with a sufficient quantity of Water during half an hour; then strain and squeeze 'em strongly; let the Liquor cool, and scum off the Fat that swims upon the Water: Afterward pound the remaining Substance in a Mortar, and caulk it to be boil'd again for half an Hour, with some of the first Water which was left, adding a little fresh; then strain and squeeze it as before, and take off the Oil that swims on the top. But the first Oil is better than the second, and therefore ought to be kept separately. The Oils of Berries of Mastick, Myrrle, and other oleaginous Plants may be extracted after the same manner.

The Oil of Bayes mollifies, attenuates, and is opening and discussive: It is very good against the Palsie, and the Shiverings or cold Fits of a Fever or Ague, if the Back be anointed with it; as also against Scabs, Tettors, &c.

The Oil of Eggs by Expression.

Take newly laid Eggs, and let 'em be hardened in Water; then separate the Yolks, and put 'em into a Frying-pan over a gentle Coal-Fire, stirring 'em about from time to time, and at last without discontinuing, till they grow reddish, and begin to yield their Oil: Then they are to be sprinkled with Spirit of Wine, and pour'd ve-

ry hot into a little Linen-Bag, which is to be tied and set in a Press between two Plates heated, so that the Oil may be squeez'd out as readily as is possible.

This Oil mitigates the Pains of the Ears and Hemorrhoids, cures Scabs, and Ring-Worms, or Tetter; as also Chaps and Clefts in the Breast, Hands, Feet, and Fundament; and is made use of in Burns, &c.

CHAP. VI.

Of Collyriums.

COLLYRIUMS are Medicines prepar'd for the Diseases of the Eyes: The following taken from *Lanfrancus*.

Take a Pint of White-Wine, three Pints of Plantain-Water, three Pounds of Roses, two Drams of *Orpiment*, one Dram of *Verdegrease*; Myrrh and Aloes, of each two Scruples.

The *Orpiment*, *Verdegrease*, Myrrh, and Aloes are to be beaten to a fine Powder before they are intermixt with the Liquors. This *Collyrium* is not only good for the Eyes, but is also of use to make Injections into the Privy-parts of Men and Women; but before the Injections are made, it ought to be sweeten'd with three or four times the quantity in weight of Rose, Plantain, or Morrel Water.

A dry Collyrium.

Take two Drams of Sugar candy, prepared Turty, Lizard's Dung, of each one Dram, White Vitriol, Succotrin Aloes, and *Sal Saturni*, of each half a Dram :

Let the whole Composition be reduc'd to a very fine Powder, and mixt together. Two or three Grains of this may be blown at once into the Eye with a small Quill, Pipe of Straw or Reed, as long as it is necessary ; and the same Powder may also be steep't in Ophthalmick Waters, to make a liquid *Collyrium*.

A Blue Collyrium.

Take a Pint of Water in which unslack'd Lime has been quench'd, and a Dram of *Sal Ammoniack* pulveriz'd ; mingle these Ingredients together in a Brass Bason, and let 'em be infus'd during a whole Night ; then filtrate the Liquor and keep it for use.

This *Collyrium* is one of the best Medicines that can be prepar'd for all manner of Diseases of the Eyes.

C H A P. VII.

Of Powders.

A Powder against Madneſs or Frenzy.

TAKE the Leaves of Rue, Vervein, the leſſer Sage, Plantain, Polypody, common Worm-wood, Mint, Mother-wort, Balm, Betony, St. John's Wort, and the leſſer Centory, of every one an equal quantity.

THEſe Plants muſt be gather'd in the Month of June, during the clear and ſerene Weather, and tied up in Noſe-gays or little Bundles, which are to be wrap'd up in Paper, and hung in the Air to be dried in the Shade: Afterward they are to be pounded in a great Braſs Mortar, and the Powder is to be ſifted thro' a Silk-Sieve.

THE Doſe of this Powder is from two to three Drams, mingled with half a Dram of the Powder of Vipers, in half a Glaſs of good White-Wine every Morning faſting, for fifty one Days ſucceſſively. It has an admirable effect, provided the wounded Perſon be not hit in the Head nor Face, and that the Wound has not been waſh'd with Water.

C H A P. VIII.

Styptick-Water.

TAKE *Coleosbar* or Red Vitriol that remains in the Retort after the Spirit has been drawn off, burnt Alum, and Sugar-candy, of each thirty Grains; the Urine of a young Person, and Rose-Water, of each half an Ounce; and two Ounces of Plantain Water: Let the whole Mixture be stirr'd about for a long time, and then put into a Vial. But the Liquor must be pour'd off by Inclination when there shall be occasion to take any for use.

If a Compress steeped in this Water be laid upon an open Artery, and held close with the Hand, it will soon stop the Blood; a small Tent may be also soak'd in it, and put up into the Nose for the same purpose. If it be taken inwardly, it stops the spitting of Blood, and the Dysentery or Bloody Flux; as also the Hæmorrhoidal and Menstruous Fluxes; the Dose being from half a Dram to two Drams, in Knot-Grass-Water.



F I N I S.

A
TABLE
OF THE
CHAPTERS

And of the
Principal Matters

Which are contain'd in every Chapter.

CHAP. I.

Of the Qualifications of a Surgeon, and the Art of Surgery Page 1

Of Synthesis, Diæresis, Exæresis, and Prothesis 2

What ought to be observed before the undertaking of an Operation 3

CHAP. II.

Of Chirurgical Instruments, portable and not portable 5

S. 4.

CHAP.

The TABLE

CHAP. III.

Of Anatomy in general, and in particular of all the Parts of which the Humane Body is composed 7

CHAP. IV.

Of the general Division of a Humane Body 10

CHAP. V.

Of the Skeleton 12

Of the different kinds of Articulations 14

Of the Number of the Bones of the Human

Skeleton 16

CHAP. VI.

Of Myology, or the Description and Anatomy of the Muscles of the Human Body 19

CHAP. VII.

Of the Myology or Anatomy of the Muscles of the Head. 21

CHAP. VIII.

A Parallel between the Distempers of the Bones and Fleishy Parts, deliver'd in a Discourse by Monsieur Arnaud in the Amphitheatre of St. Cosmus 31

CHAP. IX.

Of the Myology or Anatomy of the Muscles of the Trunk, or of the Breast, Belly and Back 38

CHAP. X.

Of the Myology or Anatomy of the Muscles of the lower Belly 41

Of the Muscles of the Parts that serve for Generation in both Sexes 42

CHAP. XI.

Of the Muscles of the Shoulder-blades, Arms and Hands 44

CHAP. XII.

Of the Muscles of the Thighs, Legs and Feet 53

A List of all the Muscles of the Human Body 64

CHAP.

The TABLE

CHAP. XIII.

*Of the Anatomy of the Nerves, Arteries and Veins
in general* 65

*Of the Structure of the four Tunicks of the
Arteries* 69

Of the Structure of the Tunicks of the Veins 70

Of the Beginning and Origin of all the Veins 71

*Of the Distribution of the ascending Vena
Cava* Ibid.

CHAP. XIV.

Of the Anatomy of the Abdomen or lower Belly 73

*Of the Opening of a dead Body at a publick
Dissection* 74

Of the Peristaltick Motion of the Guts 78

Of the Parts appointed for Generation in Men 81

*Of the Parts appropriated to Generation in
Women* 82

CHAP. XV.

Of the Anatomy of the Breast or Middle Venter 84

*The Manner of Opening the Breast in order to
dissect it* Ibid.

CHAP. XVI.

Of the Anatomy of the Head or upper Venter 87

*An exact Historical Account of the Holes of
the Skull, and the Vessels that pass through
them* 90

CHAP. XVII.

*The Description of the Brain, according to the Lear-
ned M^r Duncan* 99

The TABLE

CHAP. XVIII.

The Method of Dissecting the Brain of the same 113

CHAP. XIX.

*Of Straps, Swathing-Bands, Bandages, Blisters
and Tents* 131

A Treatise of Chirurgical Diseases.

CHAP. I.

*OF Tumours in general, Impostumes or Abscesses,
Breakings out, Pustules and Tubercles* 131

CHAP. II.

*Of the general Method to be observed in the Curing
of Tumours* 139

*How many several ways may all curable Tu-
mours be terminated* Ibid.

*What are the best means of curing Impostumes,
whether to dissolve, or to bring 'em to Sup-
puration* 140

*Of the Circumstances to be observed by a Sur-
geon in the opening of Tumours* Ibid.

Of the general Causes of Tumours 141

CHAP. III.

*Of Natural Tumours, and first of the Phlegmon
and its Dependencies* 143

Of Remedies proper for the Phlegmon 144

*Remedies for the curing of Aneurisms and
Varices* 146

THE TABLE

Remedies for Echymoses, Contusions, or Bruises 148

Of Phlegmonous Tumours and their Remedies. 149

Of a Gangrene 150

Remedies for a Gangrene 151

Of Kibes and Chilblains, and their Remedies 152

Of the Panaritium and its Remedies 153

Of a Burn and its Remedies 154

Of the Erysipelas and its Dependencies 155

Remedies for the Erysipelas Ibid.

Of Erysipelatous Tumours or Impostumes, and their Remedies 157

Of the Oedema and its proper Remedies Ibid.

Of Oedematous Tumours and Impostumes 159

Of a Schirrhous and its Remedies 162

Of Schirrhous Tumours 163

Remedies for the Polypus Ibid.

Of Cancers 164

Remedies for Cancers 165, 166

CHAP. IV.

Of Bastard or Encysted Tumours 167

Of the Remedies for Encysted Tumours 168

CHAP. V.

Of Critical, Malignant, Pestilential and Venereal Tumours and Impostumes 169

CHAP. VI.

Of the Scurvy 171

The TABLE

A Treatise of Wounds, Ulcers and Sutures.

CHAP. I.

OF Sutures or Stitches

CHAP. II.

Of Wounds in general

Of Remedies proper to stop the Hemorrhage
of a Wound

What is to be done when a Convulsion happens
in a Wound, by reason of a wounded Nerve
or Tendon

What course is to be taken to draw extraneous
Bodies out of a Wound

Of Vulnerary Decoctions to be taken inwardly

CHAP. III.

Of the particular Wounds of the Head

CHAP. IV.

Of the particular Wounds in the Breast

CHAP. V.

Of the particular Wounds of the lower Belly

CHAP. VI.

Of Wounds made by Guns or Fire-Arms

Of the Prognostick of Wounds by Gun-shot

Of the Cure of Wounds by Gun-shot

Of a Burn made by Gun-powder

CHAP. VII.

Of Ulcers in general

CHAR.

The TABLE.

CHAP. VIII.

| | |
|---|----------|
| <i>Of Venereal Diseases</i> | 207 |
| <i>Of the Chaude-Pisse or Gonorrhœa</i> | Ibid. |
| <i>Of Shankers</i> | 209 |
| <i>Of Bubo's</i> | Ibid. |
| <i>Of the Pox</i> | 210 |
| <i>The manner of making the Mercurial Panacæa</i> | 214, &c. |

A Treatise of the Diseases of the Bones.

CHAP. I.

| | |
|--|-----|
| <i>Of the Dislocation of the Bones</i> | 219 |
|--|-----|

CHAP. II.

| | |
|-------------------------------------|-----|
| <i>Of the Fracture of the Bones</i> | 225 |
|-------------------------------------|-----|

CHAP. III.

| | |
|---|-----|
| <i>Of the particular Fractures of the Skull</i> | 230 |
|---|-----|

CHAP. IV.

| | |
|---|-----|
| <i>Of the Caries, Exostoses, and Nodus of the Bones</i> | 235 |
|---|-----|

CHAP. V.

| | |
|---|-----|
| <i>Of Cauteries, Vesicatories, Setons, Cupping-Glasses, and Leeches</i> | 237 |
|---|-----|

| | |
|--|-----|
| <i>Of the Compounding of Potential Cauteries</i> | 239 |
|--|-----|

CHAP. VI.

| | |
|----------------------|-----|
| <i>Of Phlebotomy</i> | 245 |
|----------------------|-----|

The TABLE.

A Treatise of Chirurgical Operations.

C H A P. I.

| | |
|--------------------------------|-----|
| OF the Operation of the Trepan | 247 |
| Of the Bandage of the Trepan | 251 |

C H A P. II.

| | |
|--|-----|
| Of the Operation of the Fistula Lachrymalis | 252 |
| The Dressing and Bandage of the Fistula Lachrymalis. | 253 |

C H A P. III.

| | |
|--|-------|
| Of the Operation of the Cataract. | 254 |
| The Dressing and Bandage of the Operation of the Cataract. | 255 |
| Of other Operations which concern the Eye | Ibid. |
| Of purulent Matter gather'd under the Conjunctive Tunicle of the Eye | 256 |
| Of a Tumour that, ariseth in the Eye | Ibid. |
| Of the Eye-lids gl'd together | Ibid. |
| Of the Hairs of the Eye-brows that offend the Eye | Ibid. |
| Of hard and transparent Tumours on the Eye-Lids | 257 |

C H A P. IV.

| | |
|---------------------------------|-------|
| Of the Operation of the Polypus | Ibid. |
|---------------------------------|-------|

C H A P. V.

| | |
|---|-----|
| Of the Operation of the Hare-Lip | 258 |
| The Dressing and Bandage for the Hare-Lip | 259 |

C H A P. VI.

| | |
|---------------------------------|-----|
| Of the Operation of Bronchotomy | 260 |
|---------------------------------|-----|

C H A P.

The TABLE.

CHAP. VII.

Of the Operation of the Uvula 261

CHAP. VIII.

Of the Operation of a Cancer in the Breast Ibid.

The Dressing for a Cancer in the Breast 263

CHAP. IX.

The Operation of the Empyema 265

The Dressing and Bandage for the Operation of
the Empyema 266

CHAP. X.

Of the Operation of the Paracentesis of the lower
Belly 267

The Dressing and Bandage for that Paracen-
tesis 268

The Operation of the Paracentesis of the Scro-
rum Ibid.

CHAP. XI.

Of the Operation of Gastrography 269

CHAP. XII.

Of the Operation of Exomphalus 272

CHAP. XIII.

Of the Operation of the Bubonocoele, and of the
compleat Rupture 274

The Dressing and Bandage 275

Of the compleat Rupture Ibid.

CHAP. XIV.

Of the Operation of Castration 276

Of the Dressing and Bandage for the Castra-
tion 277

CHAP. XV.

Of the Operation of the Stone in the Urethra 278

CHAP. XVI.

Of the Operation of Lithotomy 279

The Dressing and Bandage for the Operation of
Lithotomy 280

Of

The TABLE.

*Of the Operation of Lithotomy in Women by
the lesser Preparative*

CHAP. XVII.

Of the Operation of the Puncture of the Perineum

CHAP. XVIII.

Of the Operation of the Fistula in Ano

CHAP. XIX.

Of the Suture or stitching of a Tendon

CHAP. XX.

Of the Cæsarean Operation

CHAP. XXI.

*Of the Operation of Amputation; with its proper
Dressings and Bandages*

CHAP. XXII.

The Operation of the Aneurism

The Bandage for the Aneurism

CHAP. XXIII.

Of the Operation of Phlebotomy

The Bandage in Phlebotomy

CHAP. XXIV.

Of the Operation of Encysted Tumours

Of Ganglions

CHAP. XXV.

Of the Operation of Hydrocephalus

CHAP. XXVI.

Of the Operation of cutting the Tongue-string

CHAP. XXVII.

Of the Operation of Opening stop'd Ductus's

Of an Incision made to open the Vagina Uteri

The manner of separating the Lips of the Pu-

dendum when conglutinated

The manner of opening the Vagina when stop'd

with a Fleshy Substance

The TABLE.

The Method of opening the Urinary Ductus as well in Boys as in young Virgins Ibid.

The Method of opening the Ductus of the Ear when stop't with a Membrane or a Carnous Substance Ibid.

C H A P. XXVIII.

Of the Operation of the Phymosis and Paraphymosis 299

C H A P. XXIX.

Of the Operation of the Varix. 300

C H A P. XXX.

Of the Operation of the Panaritium 301

The Dressing and Bandage for this Operation Ibid.

C H A P. XXXI.

Of the Reduction of the falling of the Anus 302

C H A P. XXXII.

Of the reducing of the falling of the Matrix. 303

C H A P. XXXIII.

Of the Application of the Caутery, and its Bandage 303, 304

C H A P. XXXIV.

Of the Application of Leeches, and the Dressing 305, 306

C H A P. XXXV.

Of the Application of the Seton Ibid.

C H A P. XXXVI.

Of Scarifications 307

C H A P. XXXVII.

Of the Application of Vesicatories Ibid.

C H A P. XXXVIII.

Of the Application of Cupping-Glasses 308

C H A P. XXXIX.

Of the Opening of Abscesses or Impostumes 309

The TABLE

A Treatise of the Operation of Fractures.

CHAP. I.

Of the Fracture of the Nose 311
*The Dressing and Bandage for the Fracture
of the Nose* 311

CHAP. II.

Of the Fracture of the lower Jaw 313
The Dressing and Bandage Ibid.
*A Remark of M. Arnaud concerning Fractures
and Luxations of the lower Jaw* 314

CHAP. III.

Of the Fracture of the Clavicle 315
The Dressing and Bandage Ibid.

CHAP. IV.

*Remarks, and a new Machine of M. Arnaud for
Fractures of the Clavicle* 317, 318

CHAP. V.

Of the Fracture of the Omoplatto or Shoulder-blade 320
The Dressing Ibid.

CHAP. VI.

Of the Fracture of the Ribs 321
The Dressing and Bandage 322

CHAP. VII.

Of the Fracture of the Sternum or Breast-bone Ibid.
The Dressing and Bandage 323

CHAP. VIII.

Of the Fracture of the Vertebrae Ibid.
The Dressing and Bandage 324

CHAP.

The TABLE.

CHAP. IX.

Of the Fracture of the Os Sacrum 325

CHAP. X.

Of the Fracture of the Coccyx or Rump-Bone Ibid.

The Dressing and Bandage for that Fracture

326

CHAP. XI.

Of the Fracture of the Humerus or Arm-Bone Ibid.

Its proper Dressing and Bandage 327

CHAP. XII.

Of the Fracture of the Bone of the Cubit 328

The Dressing and Bandage Ibid.

CHAP. XIII.

Of the Fracture of the Carpus or Wrist-Bone 329

The Dressing and Bandage Ibid.

CHAP. XIV.

Of the Fracture of the Bone of the Metacarpus or

Back of the Hand 330

The Dressing and Bandage Ibid.

CHAP. XV.

Of the Fracture of the Bones of the Fingers 331

CHAP. XVI.

Of the Fracture of the Thigh-Bone Ibid.

The Dressing and Bandage 332

CHAP. XVII.

Remarks of Mons. Arnaud on the Fracture of the

Thigh 333

CHAP. XVIII.

Reflections, and a new Machine of M. Arnaud's

Invention for curing the Rotula or Knee-Pan

when fractur'd transversly 334

CHAP. XIX.

Of the Fracture of the Rotula or Knee-Pan 337

The Dressing and Bandage Ibid.

CHAP.

The TABLE.

CHAP. XX.

*Of the Fracture of the Leg-Bone
Its proper Dressing and Bandage
The Dressing for complicated Fractures*

CHAP. XXI.

*Excellent and Judicious Remarks of M. Arnaud
Fractures of the Leg and Arm*

CHAP. XXII.

*Of the Fracture of the Bones of the Foot
The Dressing and Bandage*

**A Treatise of the Operations
which are performed
in Luxations.**

CHAP. I.

*OF the Luxation of the Bone of the Nose
The Dressing and Bandage proper for such
Luxation*

CHAP. II.

*Of the Luxation of the Lower Jaw bone
The Dressing and Bandage*

CHAP. III.

Of the Luxation of the Clavicle

CHAP. IV.

*Of the Luxation of the Vertebrae
A Machine of M. Arnaud for any of the
Vertebrae luxated outwardly
The Dressing and Bandage*

CHAP.

The TABLE.

CHAP. V.

the Luxation of the Coccyx or Rump-Bone 350

CHAP. VI.

the Bunch Ibid.

CHAP. VII.

the Luxation of the Ribs. 351

The Dressing and Bandage Ibid.

CHAP. VIII.

the sinking of the Xiphoides or Sword-like Car-tilage 352

CHAP. IX.

the Luxation of the Humerus or Arm-Bone Ibid.

The Dressing and Bandage 334

CHAP. X.

the Luxation of the Bone of the Elbow Ibid.

The Bandage for the same Luxation 356

CHAP. XI.

the Luxation of the Carpus or Wrist-Bone 355

The Bandage 357

CHAP. XII.

the Luxation of the Bones of the Fingers Ibid.

The Bandage for that Luxation Ibid.

CHAP. XIII.

the Luxation of the Thigh 358

its proper Dressing and Bandage 359

CHAP. XIV.

the Luxation of the Knee 360

The Bandage 361

CHAP. XV.

the Luxation of the Rotula, Knee-Pan, or

Whirl-Bone of the Knee Ibid.

of

The TABLE.

Of the Separation of the Perone from the Tibia

Of the Luxation of the Astragalus

Of the Separation of the Calcaneum from the Astragalus

CHAP. XVI.

*An excellent Discourse of the Rickets deliver'd by
M. Arnaud, &c.*

A Treatise of Medicinal Compositions necessary for a Surgeon.

CHAP. I.

OF Balsams

The Balsam of Arcæus

The Balsam of Spain

The Green Balsam

The Samaritan Balsam

CHAP. II.

Of Ointments

Unguentum Althææ

The mundicative Ointment of Smallage

The black or suppurative Ointment

Unguentum Rosatum

Unguentum Album, or de Cerussa

Unguentum Ægyptiacum

Unguentum Basilicon, or the Royal Ointment

The TABLE.

A Cooling Cerate 375

An Ointment for Burns 376

C H A P. III.

Of Plaisters 377

Of Plaster of Diapalma Ibid.

The Plaster of Simple Diachylum 379

The Plaster of Andreas Crucius 380

Emplastrum Divinum Ibid.

C H A P. IV.

Of Cataplasms or Pultiffes 382

C H A P. V.

Of Oils 383

Simple Oil of Roses made by Infusion Ibid.

Compound Oil of Roses made by Infusion 384

Oil of Sweet-Almonds made by Expression 385

Oil of Bayes 386

Oil of Eggs made by Expression Ibid.

C H A P. VI.

Of Collyriums 387

A dry Collyrium 388

A blue Collyrium Ibid.

C H A P. VII.

Of Powders 389

A Powder against Madness or Frenzy Ibid.

C H A P. VIII.

A Sytytick Water 390

The END of the TABLE.

The TABLE

| | |
|-----|-------------------|
| 372 | Oil of Rosemary |
| 373 | Oil of Thyme |
| 374 | Oil of Lavender |
| 375 | Oil of Clove |
| 376 | Oil of Nutmeg |
| 377 | Oil of Mace |
| 378 | Oil of Pepper |
| 379 | Oil of Ginger |
| 380 | Oil of Sassafras |
| 381 | Oil of Camphire |
| 382 | Oil of Storace |
| 383 | Oil of Myrrour |
| 384 | Oil of Turpentine |
| 385 | Oil of Juniper |
| 386 | Oil of Citron |
| 387 | Oil of Lemon |
| 388 | Oil of Orange |
| 389 | Oil of Bergamot |
| 390 | Oil of Balaust |
| 391 | Oil of Rose |
| 392 | Oil of Stoeckado |
| 393 | Oil of Saffron |
| 394 | Oil of Saund |
| 395 | Oil of Clove |
| 396 | Oil of Nutmeg |
| 397 | Oil of Mace |
| 398 | Oil of Pepper |
| 399 | Oil of Ginger |
| 400 | Oil of Sassafras |



The END of the TABLE

BOO
In
M
R
T
Publ
Roy
Surg
sent
Thir
thor
of G
with
A
tain
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THE PREFACE.

THE Article of Bandages and Dressings make up one necessary and considerable Part of the Institutions of Surgery.

The Business of this Art is by the Help of proper Operations to remedy some Defect incident to Human Bodies. We must not think the Use of Instruments alone can do this, without due Care be taken after. This Application of fit and proper Things it is which we call Dressing: The whole Order and Method of which our Author has endeavour'd to teach in this little Volume.

Bandages, in some Cases, are the chief, in some the sole Cure: In
A 2 some

P R E F A C E.

some they serve only to certain Remedies : In others they are Remedies themselves. The full Description of all there, is a spacious Field. They are vary'd according to the different Conditions of the Part and Malady, and there is large Scope for Invention. This Task has been undertaken by *Galen*, and after him by *V. Vidius*, and others who have handled it with great Accuracy. Their Discourses on this Subject are indeed exquisite, but by no means proper to be put into the Hands of young Students, or others who have not Leisure to consider the great Numbers describ'd by them. Besides, many of these are unnecessary, others complicate, and therefore less fit for general Use, the most simple being ever to be preferr'd. It seems therefore in some manner needful, that a small Treatise should be compiled, which might contain the best and most useful, laying aside the rest ; and this, in my Opinion, *M. Le Clerc* has done with no small Profit to (especially younger) Surgeons.

P R E F A C E.

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Surgeons. Here the Reader will find
compleat Set of the most ready and
convenient Bandages and other Dref-
sings; according to the Ways now us'd
in the Hospitals of *France*. These, in
the main, are the same made by our
English Surgeons; and where they dif-
fer, the Reader is at his Liberty to
choose the most commodious, and agree-
able to the Ends for which they are
designed.

This small Book is the more valu-
able, because it is the only Piece I
have met with, which expressly treats
of this Subject.

There are many Volumes of Chi-
rurgical Operations, Treatises of Tu-
mours, Wounds, and Ulcers of divers
Operations, Medicines, &c. However,
most certain it is all the rest is fruit-
less without a fit Dressing concur to ef-
fect the Cure. Besides, from the Ma-
nagement of this Part, the Vulgar,
who judge of Men by their Out-side,
form a good or ill Opinion of an Ar-
tist: If he make his Dressings dexte-
rously,

P R E F A C E.

rously, they are pleased, and commend him: On the contrary, if he do any thing amiss here, they are incens'd, and blame his Want of Skill and Practice; and thus often ingenious Men lose Reputation for a trifling Fault.

I shall only mention one Advantage of this Treatise, that it is small and portable, and therefore fit for Learners, for whose Use chiefly this Manual was compos'd, who may carry it in their Pocket, and make it their familiar Companion. But I fear to tire the Reader with a tedious Preamble, and therefore shall detain him no longer from perusing what is contain'd in it.

THE

T H E C O N T E N T S.

| | |
|--|--------|
| General Directions for Dressing. Preface. | Fol. 1 |
| The Dressings after Trepanning. | Page 1 |
| The Dressings for the Fistula Lachrymalis. | 7 |
| The Dressings for the Cataract. | 10 |
| The Dressings for all the lesser Operations on the Eyes. | ibid. |
| The Dressing for the Operation of the Polypus. | 11 |
| The Dressing for a Complicate Fracture of the Nose. | 12 |
| Dressings for the Operation of the Hare-Lip. | 14 |
| Of Dressings where Children are Tongue-ty'd. | 16 |
| Of Dressings for the Uvula. | ibid. |
| Of the Dressings for a Fracture of the Jaw on one Side. | 17 |
| The Dressing for a Fracture of the Jaw on both Sides. | 19 |
| The Dressings for a Luxation of the Jaw. | 20 |
| The Dressings for a Fracture of the Clavicle. | 21 |
| The Dressings for a Dislocation of the Shoulder-bone. | 24 |
| The Dressings for a Fracture of the Scapula. | 25 |
| The Dressings for a Fracture of the Shoulder-bone. | 26 |
| The | |

The CONTENTS.

| | |
|--|-------|
| <i>The Dressing for an Aneurism in the Arm.</i> | 29 |
| <i>The Dressings for Bleeding.</i> | 32 |
| <i>The Dressing for an Issue.</i> | 35 |
| <i>The Dressing for a Dislocation of the Elbow.</i> | 37 |
| <i>The Dressing for a Fracture of the Cubit, whether one or both Bones be broken.</i> | 38 |
| <i>The first Dressing for the Amputation of the Arm and Cubit.</i> | 39 |
| <i>The Dressing for an Amputation of the Arm.</i> | 44 |
| <i>The Dressings for the Sticking of the Tendon.</i> | ibid. |
| <i>The Dressing for a Dislocation of the Wrist.</i> | 46 |
| <i>The Dressing for a Fracture in the Bones of the Wrist.</i> | 47 |
| <i>The Dressing for a Fracture of the Metacarpus.</i> | 48 |
| <i>The Dressing for a Whitlow.</i> | 49 |
| <i>The Dressing for a Dislocation of the first Set of Bones of the Fingers, from the Metacarpus.</i> | 50 |
| <i>The Dressing for Bleeding in the Vein Salvatella.</i> | 51 |
| <i>The Dressing for a Fracture of the Fingers.</i> | ibid. |
| <i>The Dressing for Bronchotomy.</i> | 52 |
| <i>The Dressing for Bleeding in the Jugulars.</i> | 54 |
| <i>The Dressing for an Amputation or Cancer in the Breast.</i> | 55 |
| <i>The Dressing for a Fracture of the Sternum.</i> | 57 |
| <i>The Dressing for a Fracture of the Ribs.</i> | ibid. |
| <i>The Dressing when the Spinal Processes of the Vertebrae are fractured.</i> | 58 |
| <i>The Dressing for the Empyema.</i> | 59 |
| <i>The Dressing for a Dislocation of the Vertebrae.</i> | 61 |
| <i>The Dressing for the Paracentesis.</i> | ibid. |
| <i>Dressings which may serve for all Accidents on the Yard.</i> | 62 |

The

The CONTENTS.

| | | |
|---------|---|-------|
| | <i>The Dressing for a Fistula in Ano.</i> | 63 |
| 29 | <i>The Dressings for a Perfect and Imperfect Hernia,</i> | |
| 32 | <i>or Rupture.</i> | 65 |
| 35 | <i>Several different kinds of Trusses for Ruptures.</i> | 67 |
| 37 | <i>Divers Pessaries to put up the Neck of the Womb.</i> | |
| whether | | 68 |
| 38 | <i>The Dressing for Castration.</i> | 70 |
| de Arm | <i>The Dressings for Cutting or Extracting the Stone</i> | |
| 39 | <i>out of the Bladder.</i> | 71 |
| 44 | <i>The Dressing for a Dislocation of the Thigh.</i> | 73 |
| ibid. | <i>The Dressing for a Fracture of the Thigh.</i> | 74 |
| 46 | <i>The Dressing for the Rotula broken transversely.</i> | 78 |
| of the | <i>The Dressing for a Dislocation of the Knee.</i> | 80 |
| 47 | <i>The Dressing for a Dislocation of the Rotula.</i> | 81 |
| Arpus. | <i>The Dressing for a Complicate Fracture of the Leg.</i> | |
| 48 | | ibid. |
| 49 | <i>The Dressing for a Simple Fracture of the Leg.</i> | 86 |
| Bones | <i>The first Dressing in an Amputation of the Leg.</i> | |
| 50 | | 90 |
| tella. | <i>The second Dressing for an Amputation of the Leg.</i> | |
| 51 | | 95 |
| ibid. | <i>The Manner of making a Bed for a Woman who</i> | |
| 52 | <i>Lies-In.</i> | 99 |
| 54 | <i>The Dressing which the Midwives of Paris use</i> | |
| the | <i>after Deliveries.</i> | 100 |
| 55 | <i>The Dressing for a New-born Child.</i> | 103 |
| 57 | <i>Of Irregular Dressings.</i> | 105 |
| ibid. | <i>A Dressing for an Ulcer behind the Ear.</i> | ibid. |
| er- | <i>A Dressing for the Stump of a Finger which is ta-</i> | |
| 58 | <i>ken off.</i> | 106 |
| 59 | <i>The Dressing for a Wound or Ulcer on the Buttocks.</i> | |
| 2. | | 107 |
| 61 | <i>The Dressing for an Extraction of the Stone, when</i> | |
| d. | <i>it is in the Yard.</i> | ibid. |

The CONTENTS.

A Dressing for a Wound in the Head where the Bone is bare, the Teguments separated from it, and there is a great Putrefaction. 108

A Dressing for a large Ulcer wherever it be, as on the Thigh, one Part of which is red, the other fungous, and over-run with superfluous Flesh, another Cavernous, another Sanious, another Part Cal- lous, which Accidents often happen to the same Wound. 109

The Dressings for Bleeding in the Foot. 110



PRE-

PREFACE.

General Directions for Dressing.

THOSE who intend to treat orderly of any Art or Science, must begin with the most general Matters, that they may not be obliged to repeat the same Things too often.

Nothing can give a Patient more Satisfaction, than to see his Dressings neatly made: This makes him think he has the good Fortune to fall into the Hands of a skilful Artist, and has nothing more to desire. On the contrary, if the Dressings be slovenly, besides the dangerous Accidents which follow, the Patient is disturbed, vexes, and frets; and these Passions are the Cause of a great many other ill Symptoms.

The Cure is a Matter which none can judge of, but one of the same Profession; and few People are able to discern the Faults committed in it; but all the World, by casting their Eyes on the Dressings, judge whether they are well or ill made. Thus does the Reputation of a Skilful Person often depend on a Trifle;

B

and

and it is this which is more necessary for the most part than real Merit.

When a young Student in Surgery casts his Eyes on the numerous Bandages described by *Galen* in his Book *de Fasciis*, he presently desires to learn them; and there is no Country Surgeon who dares so much as think of it; and this is the Cause why so necessary a part of this Art is often neglected.

To remedy this Evil, I have composed this Manual, which I hope will be acceptable to Young Men; for whose Use it is chiefly designed.

I have laid down all the convenient Dressings which are of use in Chirurgical Operations from the Head to the Foot; and because they are very embarrassing, I have separated all the small Pieces, and put Numbers to each of them shewing the Order in which they are to be applied.

The Young Surgeon, by this means, may always have the most useful before his Eyes; and at one View, see how each part of them follows the other, and may cut them out in great or every Plate, according to the Pattern there given in little; that so he may have them ready when he shall be called to take charge of any Patient.

I have brought all Bandages to so small a Number, that no Person hereafter can reasonably excuse himself, or despair of learning them.

I have reduced all those of the Head to two, viz. the *Folded Handkerchief*, and the *Sling with four Tails*; so easy to apply, that any one may do

do it; all those of the *Thorax*, to the Napkin;
and all those of the Limbs, to several Con-
volutions of a Roller, which I call *Rounds* and
Edgings.

Besides these, there are several Compound
Bandages, but so easy to apply, no one can want
Instructions for the Use of them.

Bandages are these apply'd; and Fillets and
Rollers are Pieces of Linnen Cloth, very narrow
in regard of their Length, which serve to bind
Remedies on the Part to which they are ap-
ply'd.

The Compound ones are such to which other
Pieces are stitch'd.

The Circular or Round Bandage is when a
Part is so rolled, that the Turns above do exact-
ly cover those beneath.

A Bandage is said to be *with Edgings* when the
Roller is carry'd up or down obliquely, and the
first Turns are not cover'd by the next, but
more or less of the Turns beneath may be
seen.

A Bandage is said to be *Creeping*, when a
Roller is so brought round a Part, that the Turns
do not touch one another, but there is a Space
left between each of them. This is used when
the Surgeon would avoid Streightning the Part,
as in great Inflammations, when only some slight
thing is required to keep Remedies on.

There are some Cases in which Bandages are
Remedies of themselves; and there are others
where they serve only to keep on other Appli-
cations.

The latter are term'd *Contentive*: Of the for-
mer sort, are rolling a Dislocated or Fractur'd

Part; for tho' Remedies be apply'd, this is only by Accident, as Oxycrate is to prevent Fluxion, or the like.

When a Part is to be rolled, take care to end with a Round or two about it, and always turn back the End of the Roller; for, besides that the Bandage is nearer, it is more secure, since the Roller may break through the Threads at one End, (which is of great Consequence, especially in Fractures,) for it is the Roller which keeps on the other Dressings.

Rollers ought to be made of very strong Cloth, for fear they should break; and yet they must not be too new, or stiff. They must not have any Lifts, for these do not stretch, and being firmer than the middle of the Roller, they strengthen the Sides; and the other Part gives way, which is of very great Consequence, especially in Fractures, for the Middle of the Roller being slack, and not supporting the two Ends of the fractur'd Bone, they recede from each other, and then the Patient must be lame, or have his Limb distorted.

In all Fractures and Luxations, the Rolling ought to be streight, to keep the Bones in their Situation when they are reduced, and yet not so as to hinder the Circulation, for then the Part will be defrauded of its Nourishment, and there will be danger of a Mortification.

It may be concluded the Bandage of any Limb is too streight, when the Veins beyond are exceedingly swoln; and in this Case the Dressings must be taken off, and made a-new, when there is only a small Rising of the contiguous

ous Parts, and the Vessels are very little, or
or at all tumify'd; the Bandage may be judged
to be in a very good Condition.

If after the Bandage there be no Rising of
the neighbouring Part, and the Patient complains
of nothing, and is very easy, the Dressing is too
thick, and must be taken off, for however the
Patient ought not to suffer much Pain when the
Part is bound up, yet he ought to feel some, and
not be altogether at his Ease.

If the Patient feel too much Itching under
his Dressings, they must be taken off, and the
Part bathed with *Oxycrate*, to allay this trouble-
some Symptom: However, the Surgeon ought
not to heed the first Complaints, but must wait
to see if he persists, and only wet the Dressings
with a little *Oxycrate* to appease the Itchings,
without taking them off, if it may be.

A Roller is said to have but one Ball or
Head, when it is rolled up at one End only,
and two when it is rolled up at both.

Whilst you are using it, the Roller must be
a little unrolled as may be, because if much
be undone, you cannot be Master of it, which
is very troublesome, and it cannot be strained
so much as is necessary.

When you make use of a Roller with two
heads, and would pass one End of it over the
other to make Rounds on the Part, you must
unroll a great deal, that so fetching it a great
way, one End may go over the other smoothly,
and by this means the Place where the two Ends
of the Roller pass over one another cannot be
discerned, and the Rounds will be very near.

In the rolling a Part which is of an unequal Thickness, as the Leg for Instance, which is bigger about the Calf than in the Small, there is a sort of Pocket formed in bringing every Round of the Roller. To avoid this, make a Reflexion where this would happen; that is, lay your Finger on the Roller where you would bring it back, then turning your Hand, by a Pronation of it, make a Pleat; and this is called a Reflexion, and is to be done once in every Turn while the Part continues to lessen, unless you shall rather chuse to guard the Part with circular Compresses graduated.

When you begin a Bandage, you must always take care to make it steady by two Rounds about the Part, and then make your Edgings.

When you make a Bandage with a Roller with two Balls or Heads, apply the Middle, and let the two Heads be on the upper Side of the Roller.

When you roll a Fractur'd Part, you must never leave it, that is to say, you must keep it with one Hand whilst you bring the Roller round with the other; and when you shift the Ball from one Hand to another, you must have the other Hand on the Part, and do this alternately, for fear least the Bones should slip out of their Place if they were not supported.

When you apply Dressings on a hairy Part, you must not forget to shave it, otherwise the Emplaisters sticking to the Hair, would create a great deal of Trouble in the taking them off; besides, these hinder the Remedies from taking effect, and the Slovenliness of this would offend the By-standers.

The more nasty any Business is, the more necessary is it to do every thing neatly; and therefore when you take off any Pledgits or Emplaisters, take care not to throw them on, or under the Bed, or on the Floor, for fear you meet with some Affront from the Servants, but rather order a Chair or Plate to lay your Dressings on. Take care to double the Emplaister, that the By-standers may not see the *Pw*, which would offend them, and make them condemn you as a Sloven. And when you look upon the Pledgits, which you must not fail to do, that you may judge of the Quality of the *Pw*, and the Condition of the Wound, this must be done with a Cast of an Eye, and dexterously concealed from the Persons by, that it may not give Offence to them.

Before you take off the Dressings, you must always cleanse the Edges of the Wound with the Side of your *Spatula*; for if you should defer this till afterward, you would leave it too long exposed to the Air, and this wou'd be dangerous, because the Nitre fixes in it, and its Caustick Salts corrode the Wound; and if you should omit to cleanse it at all, small Ulcers would form themselves under this Crust, which you would not discern.

Before you take off one Dressing, the other must be in a readiness, that so the Wound may not be left open; and if, after it be open'd, there shall remain any-thing to be done, lay a Rag over it to defend it from the Action of the Air.

You must never wipe an Emplaister, and apply it a second time to the Wound; for, besides

that is slovenly, it is impregnated with several Acids from the Wound, which will re-enter it, and increase the Malady.

When the Rollers have imbibed much of the Pus, you must put them in a Bucker, and not dry them at the Fire, as is done in some Hospitals, for this is a dangerous Practice for the Reasons above-mention'd.

To rake off the Pus from a Wound, you must not wipe it, but lay a Rag of fine Linnen on it, and press this softly with a little Lint, especially when the Wound begins to look well; for if you should wipe it, you would in a very small time undo what Nature has been a long time finishing.

If there be no Sinuosities, you must syringe it with some convenient warm and spirituous Liquor, rather than persist to cleanse it with Rags and Tents, which cannot be done without Pain.

When you take off an Emplaster, take hold of it by one Corner, and draw it off pretty quick. If you should draw it hastily, it would create too much Pain, which is to be avoided as much as may be; and besides this, you might carry away with it some of the new-form'd Flesh: On the contrary, if you should do this slowly, you would keep the Patient too long on the Rack; and therefore you must observe a Middle between the two Extrems.

Remember ever not to apply Dressings dry on a Fracture or Dislocation, but steep your Roller, Compresses, &c. in Wine well warm'd, or Oxycrate; for so every Thing will sit more close and neat; and these Liquors serve as De-

fenlatives

atives to strengthen the Part, and prevent
Fluxion.

For the greater Neatness, take off the Pledgits
which have the *Pus* on them with your *Forceps*,
to prevent fowling your Hands, which would be
offensive to the By-standers.

Lint is made of old Rags, and yet they must
not be too much worn neither; because the
Threads breaking, and being too short, the
Pledgits are harder to make, and do not hold so
well together.

To make Lint, (for I speak to young Learn-
ers who know nothing at all) cut bits of Rags
square, as large or larger than the Palm of the
Hand; take one of these Bits in your Left
Hand, and with the other draw it Thread by
Thread; if the Pieces of Cloth be too large,
the Threads cannot be so well drawn. These
Threads you must range by the Sides of one
another, and not entangle them; for when they
are mixed together, it is hard to make handsom
Pledgits.

Take a Handful of the Lint, more or less in
Proportion to the Pledgit you would make, and
comb or draw it in the other Hand, clapping
your Thumb on it to keep it whilst you are
drawing it. Observe that the Threads must by
no means be placed all parallel, that is, one
by the Sides of the other, but must cross from
time to time to keep the Pledgit the better toge-
ther. When you have well enough drawn the
Lint, turn it quite round to raise the Ends of the
Threads, and cast them back with your Thumb,
or the Back of your Hand over the Pledgit;
when this is done, apply it on the Back of the
Hand,

Hand, and with the Flat of the other Hand rub it till it be firm and close.

Pledgits are made round, long, or oval, as Occasion requires.

To make a Dossil, take the Lint in your Right Hand, and draw it between your Thumb and the Fore-Finger of your Left Hand, in Proportion to the Bigness you would have the Pledgit of; Bend this small Packet in the midst, and raise the Ends, and roll this Dossil very strongly between both Hands, to make it firm. It is a Rule, that you must always tie the Dossils in the middle with a Thread, when you put them into Wounds where you think it will be difficult to draw them out, or apprehend that you may forget and leave them in, as it happens in deep *Sinus*; for the Flesh would grow over them, and the Wound cicatrize; but it would break out again, and the Relapse would be worse than the first Grievance.

Tents of Lint are made like Dossils, except that they are cut and shaped at the End with a sort of a Cap, not unlike the Head of a Clove. These are made to put into small Orifices to keep them open, to give a Discharge to the Matter.

Great Tents of Cloth are made of small square Bits of Raggs, in this manner: Take one of these by its Angles, and roll it between the Thumb and Fore-Finger of the Right Hand, so that one of its Ends be pointed, and that the other grow bigger; then take another of these Raggs, and roll it on the former, and continue to do thus till the Tent be thick enough; Cut the lesser End to make it blunter, for fear it hurt the

the Parts; Snip the thick End transversally; then give it a Cut with your Scissors lengthways, for the forming a Head or Cap; and, lastly, tie it with a Thread of Lint. This Tent is to be introduced into large Orifices, as between the Ribs in the *Empyema*, or into the Perforation in the Rings of the Muscles in a *Bubonocoele*, &c.

It often happens that a Bandage may be made either with a Roller roll'd with one or two Heads. When this happens, the former is to be preferr'd, as being less troublesome.

To make a neat, close, and fine Bandage, the Roller must not be too broad; for then it will be loose on the Sides.

Some Rollers are very narrow, others very broad, others of a middle Condition. For the right using of a very narrow Roller, you must begin by folding it at the End; then keep it between the Thumb and Fore-Finger of the Left Hand: Put the other End in the Right Hand, between the Little-Finger and the Ring-Finger; Hold it firm: Then put the Thumb of the Right-Hand on its Head, and the Fore-Finger beneath, and roll it very firmly between the two Thumbs and the two Fore-Fingers.

For one of the middle sort of Rollers, keep it between the Fingers of the Left-Hand and the Mount of *Venus*, putting the Thumb of the Right-Hand on its Head, and the Fore-Finger beneath.

For such Rollers as are very large, put them between the Fingers of both Hands, as Shopkeepers do their Ribbons. This Method may serve for all sorts of Rollers, being the most convenient and simple.

As

As you proceed in undoing the Roller, you must gather it to a Heap to prevent its being troublesome, as it would be if it lay all abroad.

In taking off or applying the Dressings, the Surgeon must shew a Tenderness, and not say or do any thing which may discover a Cruelty of Temper. If the Patient be naturally Hypochondriack or melancholy, do it as quick as may be, and do not amuse your self with talking with him; for these People bear a mortal Hatred to all Doctors and Surgeons.

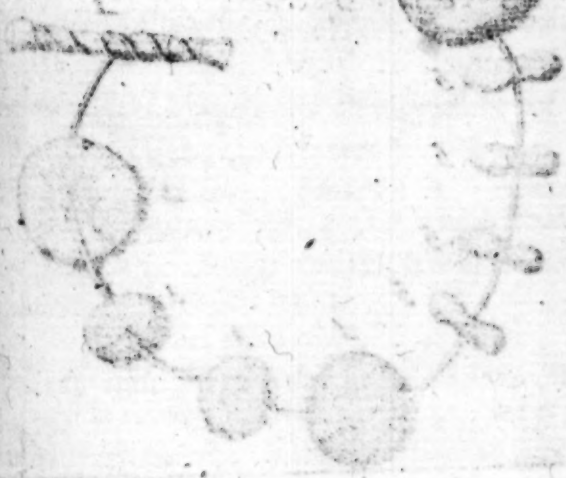
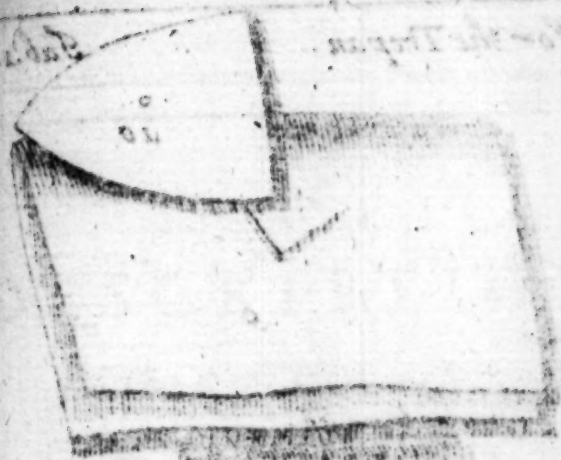
I say you ought to be tender, but not pitiful: For however a Patient may love to be gently dealt with, he had rather be cur'd; and if a Surgeon discover much Compassion, they apprehend this will hinder him from doing his Duty; or, at least, will conclude he has not been very conversant in the Business of his Profession.



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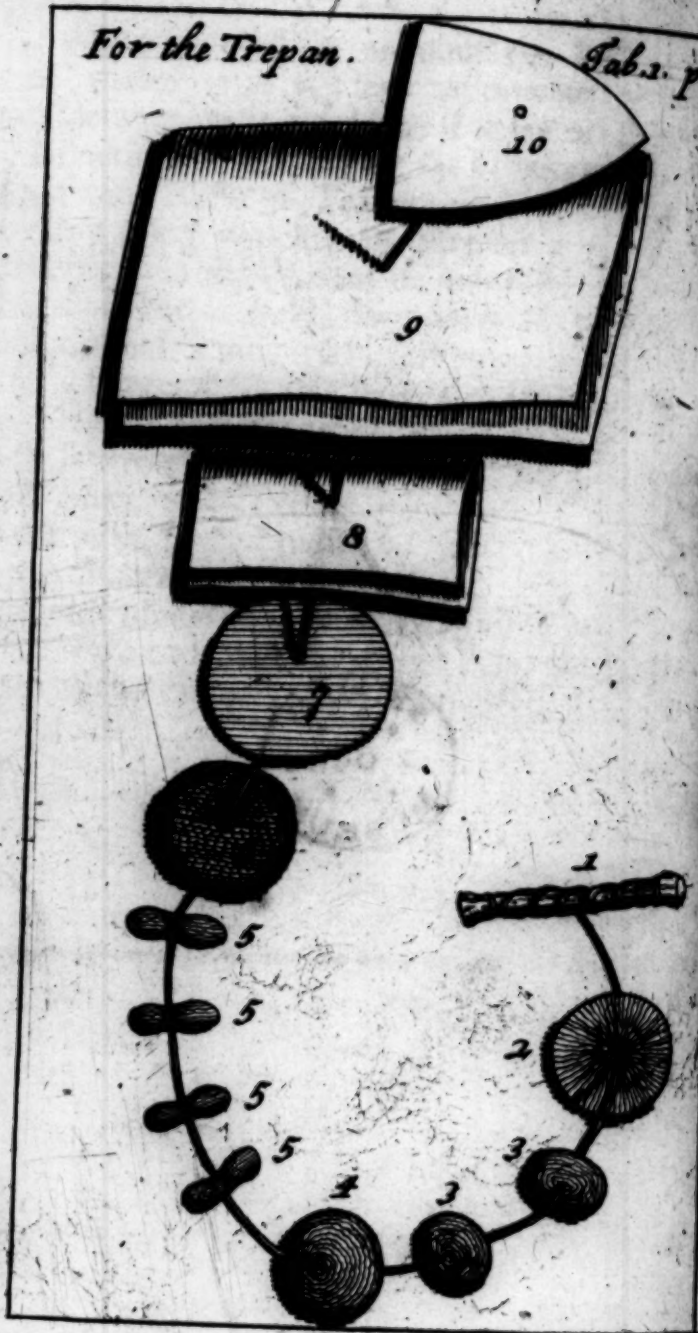
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For the Trepan.

Tab. 3. p. 3.



A
 DESCRIPTION
 Of the most Commodious
 BANDAGES
 AND
 DRESSINGS.

The Dressings after Trepanning.

Trepanning is the Perforation of the Skull to discharge Matter supposed to be lodg'd on the *Dura Mater*; and this cannot be made without wounding the Teguments; therefore proper Dressings are required, which are here represented. See *Tab. 1.*

1. A false Tent made of Lint, in which a Lancer is conceal'd for the piercing the *Dura Mater*, when the Surgeon thinks there is Pus beneath.

2. A Syndon of Lint, which is to pass thro' the Hole of the Skull, and must be dexterously prest close to the *Dura Mater* with the Lenticular Instrument.

The Syndon must be apply'd even, flat, and close to the *Dura Mater*, lest its Inequalities pressing the Membrane, should cause a dangerous Inflammation.

The Syndon must be a little larger than the Hole of the Skull, that so the Remedies may diffuse themselves on the *Dura Mater*, and it may not suffer any Contusion when the Brain in its Dilatation beats on the Edges of the Hole.

Before you introduce the Syndon, steep it in a Mixture of Spirit of Wine and Honey of Roses; for the applying Oils and greasy Medicines is apt to occasion Excrescencies or *Fungus's*: When these arise, you must use Desiccatives, as Spirit of Wine and Tincture of Aloes; and if these are not sufficient to dispel them, have recourse to Powder of Turpentine, *Iris Florentina* or Burnt Allom. Be sure to press these Powders a little on the *Dura Mater*, with the Lenticular Instrument.

After the use of these Remedies, steep your Syndon in a Decoction of the vulnerary Plants boil'd in White-Wine, adding a little Honey of Roses.

To make this Syndon, take in your Right-hand some good soft Lint; draw as much of it as may be about the Thickness of a Goose-Quill, between the Thumb and the Fore-Finger of the Left-Hand; then tie this small Packet of Lint in the Middle with a Thread: Next spread the Lint round like so many Rays, and cut it into a circular Form a little greater than the Hole made by the Trepan.

Be-

Bandages and Dressings.

3

Before you apply it, you must steep it in some convenient Liquor: The most spirituous are best, because they are Resolutive, and hinder Putrefaction: Those which are oily stop the Pores, lessen Transpiration, and occasion Inflammation, as was before noted.

Before you apply the Syndon, you ought to tie it with a Thread, which may hang out over the Skull, that so you may draw it out at the next Dressing. This is done by way of Precaution, lest it shou'd slip under the Bones between the *Dura Mater* and the Skull, whither it might be forced by the *Systole* and *Diastole* of the Membrane, especially when the wounded Person is very ancient; for we know that in these People the *Dura Mater* is ty'd to the Sutures, and that almost every where else there is a Space between the *Cranium* and it, into which the Syndon may slip; and if such an Accident should happen, there would be an Extraneous Body, which would require a new Operation.

Some prefer a Syndon made of a small Bit of a soft Rag cut round, to one of Lint, for fear lest some of the Threads shou'd get under the Skull, and create troublesome Accidents.

3. Small round Pledgits of Lint made about the Bigness of the Hole, which are to be laid one on another over the Syndon, that there may not be any empty Space in the Hole. Press these softly with the Lenticular Instrument, without too much Stress on the *Dura Mater*.

I say that the Hole ought to be well fill'd with Pledgits, because it sometimes happens that the *Dura Mater* is inflam'd, and comes out, which
causes

causes ill Accidents, and very much embarrasses the Surgeon; for, not to mention the Difficulty of putting it back, it corrupts, mortifies, and in such case must necessarily be cut off.

Observe that you must wet the Pledgits, with which you fill the Hole of the Trepan, in some spirituous Liqueur.

4. A dry Pledgit is to be apply'd over the Hole immediately on the Bone; for you must never apply Medicaments on the Bones, unless you desire to procure an Exfoliation; in which case Oil of *Guaiacum* and Tincture of *Euphorbium* are excellent; and must then be procur'd, when you desire the Flesh should grow to cover the Orifice of the Skull.

5. Small Dossils of Lint dipt in a good Digestive made with Yolks of Eggs, Turpentine, and Oil of Roses, to be put within the Lips of the Wound, to procure Suppuration, and suppress the too quick Growth of the Flesh, and prevent its covering the external Orifice too soon; for the Wound must never be cicatrized till the Hole is fill'd with a *Callus*, which is about forty or fifty Days after the Operation.

If in spight of the Digestive, the Flesh grows too luxuriantly, you must touch it with the *Lapis Infernalis*, and lay a dry Pledgit on it, leaving it till the next Dressing.

Observe that the large Digestion of the External Wound does extremely ease the *Dura Mater*, by reason of the Communication between the External and Internal Vessels. Observe likewise

wise that you must shave the Head, and embrocate it well with Oil of Roses and Spirit of Wine.

6. A large Pledgit arm'd with a good Digestive made with Yolks of Eggs, Turpentine, and Oil of Roses, which is to be apply'd over the whole Wound.

7. A large Emplaster to be apply'd over all the above-nam'd Dressings.

8. A Compress of Linnen Raggs in four Doubles to be laid over the whole Parr, as well for preserving it warm as the keeping on all the Dressings.

9. A large Napkin to make the Bandage, called the *Great Cap*, if you are not contented with the Folded Handkerchief.

To make this, take a large Napkin, more oblong than square; double it length-ways in the Middle, and leave one of its Ends four or five Fingers breadth longer than the other: Apply the Middle of the Napkin on the Patient's Head, so that the longest Side may immediately touch it. Order a Servant to lay his Hand on the Dressings, which he must do very gently, for fear of discomposing them: Whilst the Bandage is making, cause the upper Ends to be held under the Patient's Chin, whilst you take the two lower Ends, to wit, one in each Hand, and draw them Horizontally on each Side, that so you may raise the depending part of the Napkin over the Forehead; then cross the two Ends of the Napkin

kin which you have hold of behind the Head, that so there may be no Wrinkles ; bring them forward, and pin them at their Extremities. In this manner there will remain one End of the Napkin on each Shoulder, which you must handsomely raise over the Head, bringing them near the Eyes, and then fasten the two Ends which your Assistant held under the Patients Chin, either by tying them in a Knot, or pinning them. This Bandage, if it be well made, makes a Figure not much unlike a Helmet. If this does very much embarrass, you may make the Bandage with a fine Napkin folded Diagonal-wise, or in a Triangular Form : Take this in the Middle with your two Hands, your two Thumbs being on the Fold one over-against the other : Apply the Middle of the Napkin on the Patient's Forehead : bring your two Ends behind the Head, sliding the Hand all along the Napkin : bring back the two Ends over the Forehead, having engaged the two other Ends underneath behind the Head : Lastly, pin the two Ends, which you have brought back, where they terminate.

You must take care to make as few Pleats as may be ; for the Patient's Head is pain'd, and the least Inequalities hurt it when it lies on the Pillow. This Bandage is easy, and any one can make it ; and it may suffice for almost all Cases of the Head, where *Galen* employs fourscore or a hundred, which are very difficult to retain for those who are not daily conversant in them.

10. Over all these Dressings put a woollen Cap big enough to receive them without compressing the

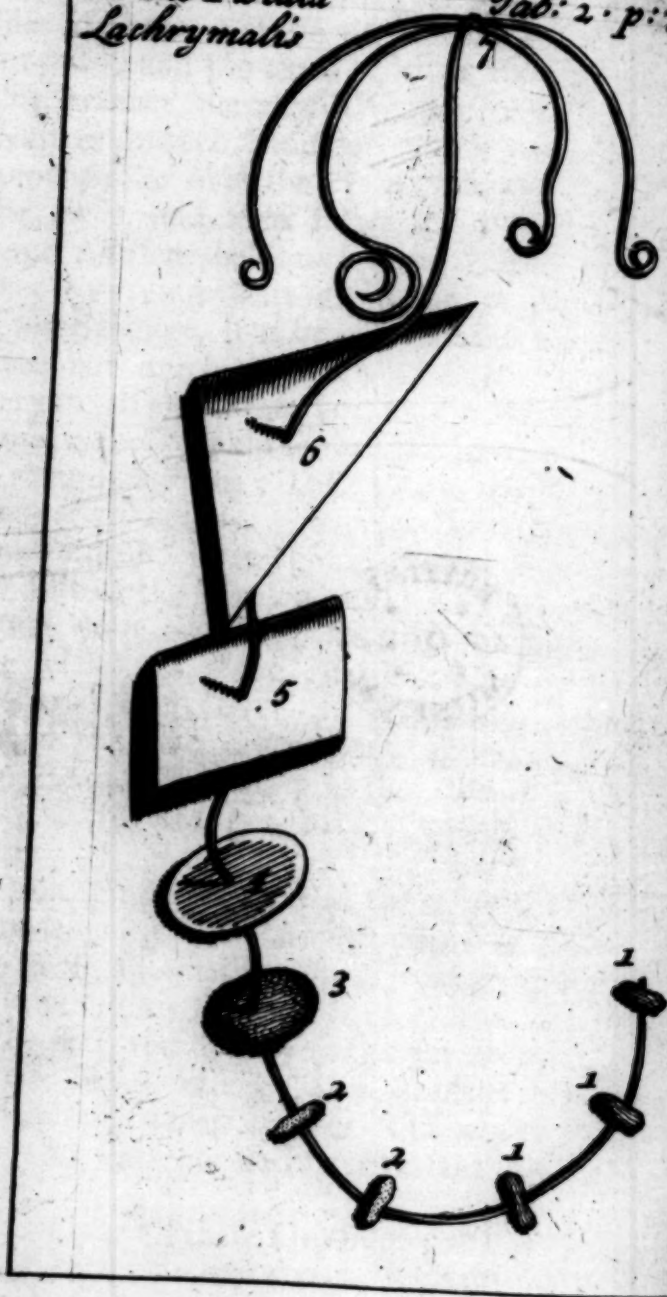
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*For the Fistula
Lachrymalis*

Tab: 2. p: 7.



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7. *the Head.* This is made of four Pieces cut triangular-wise, and stitched together, because there are none large enough to be found ready made in the Shops. Number 10 in the Tables shews you the Manner of cutting the four Pieces.

Observe, that low and moist Places are excellent for Distempers of the Head, and dangerous for those of the Legs; and therefore when you have the Charge of Patients of Quaggy, cause them to be convey'd to some such convenient Place, since too airy ones discom-
pose them.

Dressings for the Fistula Lachrymalis.

The *Fistula Lachrymalis* is an Abscess form'd by a sharp saline Humour in the greater Angle of the Eye, in which an Incision is made to discharge the Pus, to consume the Callosities, and perforate or remove the Lachrymal Bone, that so the Tears may have a free Passage into the Nose as before.

The Dressing is as follows. See *Tab. 2.*

1. Small Dossils of dry Lint, with which the Wound is filled to dry up the Blood and Pus, for afterwards the Dossils must be arm'd with some Digestives, to procure Suppuration.
2. Small Tents or Pieces of Sponge prepared, which are put into the Wound to dilate it, and hasten the Exfoliation of the Lachrymal Bone, which most commonly comes away whole, by reason

reason it is very small and slender, and therefore it is not necessary to pierce it, for if it comes away entire, the Hole is larger than any Perforation could make it.

When the Bone is laid bare by dilating the Orifice with Spunge-Tents, you may introduce Remedies to remove the *Caries*, if there be any; for which Purpose Tincture of *Euphorbium* is excellent.

Observe to wait the Removal of the *Caries*, before you attempt to raise new Flesh.

For the preparing these Tents for the dilating of Wounds, dip a bit of Spunge in white Wax melted, then put it in the Press, where it must be left for some time, to lessen its Bulk as much as may be. Cut small Bits of this Spunge thus prepared, and put them into such Wounds as you would dilate. These small Bits of Spunge imbibing the Serosities, are extended and swell to their first Bulk, and so dilate the Wound.

3. A small oval Pledgit of Lint armed with a Digestive to be apply'd on the Dossils, this must be of such a Figure as will suit the Wound; and therefore the Oval is most commodious.

4. An Oval Emplaster to cover the Dressings.

5. A small square Compress.

6. A Linnen Handkerchief folded obliquely from Corner to Corner, or triangular-wise, with which the Contentive Bandage is made to keep

on.

on the Dressings: For the right applying it when it is thus folded, take it in the middle with both your Hands, placing your two Thumbs on the Folding; lay the Middle on the Eye, letting the Fold touch the Nose; bring one end of the Cloth under the Ear, and the other over the top of the Head, and pin the two Ends behind, passing one over the other, and taking care to compress the Eye.

7. A small Machine made of two Semi-circles of Wire, fasten'd together in the Middle: This is made use of instead of the Cloth above-mention'd, when you do not think fit to bind the Eye. This Machine is put on the Patient's Head, over a Cap: One of the Ends of this Bandage passes behind the Head; the other End, where the small Plate *A* is turned spirally, is apply'd over the Dressing, on the *Fistula*, to keep it on, instead of a Cloth; the two other Ends pass over the Temples. The Iron, at the end of which you see the Plate *A*. must be a little bent, that it may have some Springiness, and so the better compress the Part. This Instrument is very convenient, because by this means the Patient has both his Eyes open: It costs nothing, and the Surgeon himself can make it in a Quarter of an Hour, when there are no Work-men near.

Observe, that sometimes after the Operation is over, and the Wound and Ulcer cured, it happens that the Tears still flow down the Cheeks, by reason of the Obstruction of the Lachrymal Channels. In this case you must remove the Obstacle, by purging with Hydragogues, and lay on the Eye a Compress dipt in Spirit of Wine
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camphorated, to which a little Rose-water may be added.

The Dressings for the Cataract.

The Cataract is an Extraneous Body, formed in the Aqueous Humour, which standing before the Pupil, hinders the Light from entring.

The Operation, or Couching, is the piercing of the Ball of the Eye with a Needle, and depressing with its Point the Body which stands before the Pupil: After the Operation is finished, the Part is dress'd in the following manner.

Lay on the Eye a Compress of fine Linnen Rags, dipt in some Defensative, to prevent Inflammation; then bind up both the Eyes with a fine Linnen Cloth folded Triangularly. Apply the Middle of the Fold on the Nose and both Eyes, bring two Ends of it over the Head, and let them fall behind; bring the two other Ends behind the Head, and let them fall: Cross over the Ends which are on the Head: Bring back the two lateral Ends before, and fasten them with Pins at their Extremities.

Both Eyes must be bound, though only one be hurt, because one Eye cannot stir, but the other will move with it, and this is to be avoided: This Dressing is so simple, that it does not deserve to be represented in a Figure.

The Dressings for all the lesser Operations on the Eyes.

The way to let out the Pus under the Cornea is by a small Incision with a Lancet: The way

Bandages and Dressings.

II

of extirpating the small Tumours arising on the Eye, is by a small Slip Knot, which may be streightned as occasion serves. The Manner of extirpating the Tumour call'd the *Unguis*, which comes in the great Angle of the Eye, is by tying its Base, and strengthening it a little every Day. That to disengage the Eye-lids which are glew'd together, is by passing a crooked Needle, with a Thread, under the Eye-lids to raise them, being careful not to hurt the Eye, whilst you separate the Adherences with a Lancet: That of removing the Hairs which grow into the Eye, is by pulling them out with a *Forceps*. In the these and the like petty Operations, all the Dressings required, is only a Compress dipt in some Defensative, which is to be kept in by a Cloth folded Triangular-wise, as was described before for the *Fistula Lachrymalis*.

This Defensative is made with Plaintain-Water, Rose-Water, and the White of an Egg beaten together.

The Dressing for the Operation of the Polypus.

The *Polypus* is a fleshy Excrecence arising in the Nose, and torn out with a *Forceps*. After the Operation is over, let the Patient snuff up a little Wine: If a Flux of Blood follow, put up some Astringent Powders to stop it, and dry the Ulcer, and then make the following Dressing.

Put a Tent of Linnen Rags into the Nose, and let this be armed with some good Digestive, to suppurate the rest of the Tumour, or some Caustick Powders to eat away what remains; if it be Callous, and you judge that suppurating Medicines will not waste it. If you arm your Tent with

with Causticks, it must only be on that Side which touches the Swelling, for if it touch the *Septum*, or Partition, it would corrode the Cartilage, and the Nostrils would be both in one, which would be a very great Deformity. For the better defending this, first put up a small longish Compress before the Tent; the Compress will be retain'd in its Position by that, and the latter may be kept up by a narrow Filler, fasten'd to the Patient's Cap.

The Dressing for a Complicate Fracture of the Nose.

When the Bones of the Nose are broken, and there is likewise a Wound in the Flesh; this is called a Complicate Fracture.

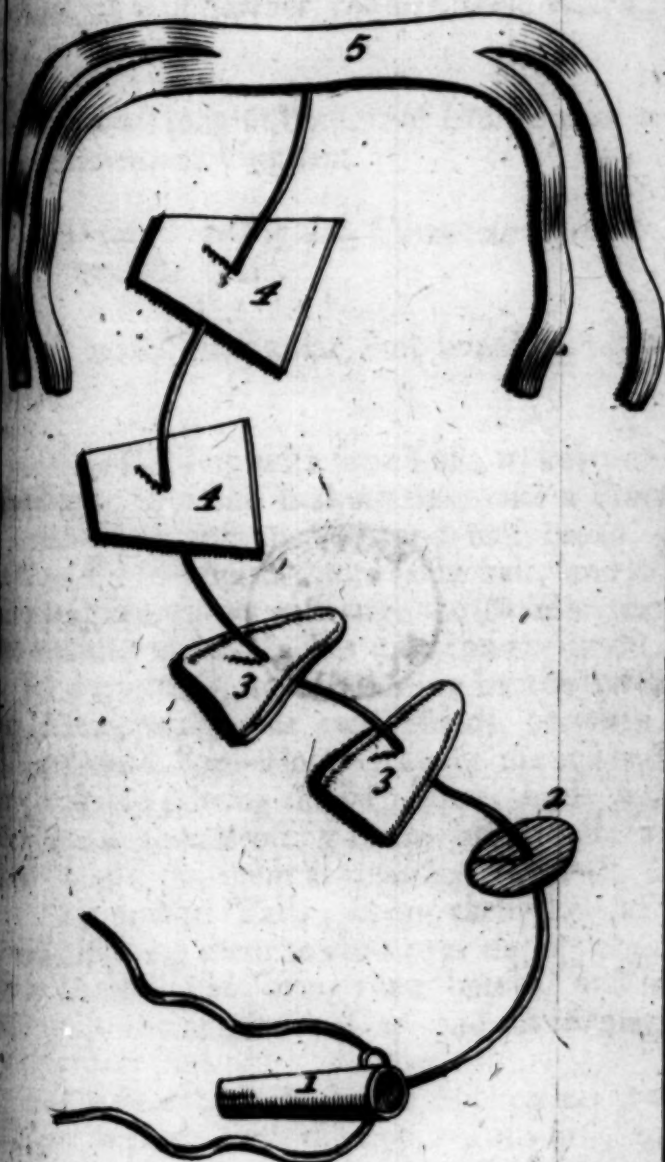
When the Bones are reduced, the following Dressing is to be used. See *Tab. 3.*

A small *Cannula*, or Leaden-Pipe, to be introduced into the Nose, to support the fractur'd Bones, after they are rais'd. This *Cannula* must be made flat at the End, which is put up the Nose, that so it may not hurt or break the spongy Bones: There is, at the bottom of this, a little Ring, into which a Ribbon must be put; the End of which is to be fasten'd to the Patient's Cap, for fear lest it should fall out. This Pipe being hollow, the Patient may breathe through it.

The Surgeon may make this himself, thus: Let him take a piece of Lead, and beat it flat and thin with a Hammer, and then bend it, and give it the Shape which you see, *Fig. 1.*

Before he introduce this Pipe into the Nose, let him dip it in Oil of *Turpentine*, beat up with Spirit of Wine.

For a Fracture of the Nose. Tab. 3. p. 12.





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If the Fracture of the Nose be without any Wound, there is no need of any other Dressings besides this Pipe; but if the Fracture be with a Wound, it will farther require these which follow.

2. A small longish Pledgit of Lint, armed with some convenient Unguent.

3. A small triangular Compress apply'd on both Sides the Nose.

4. A small Triangular Past-board, apply'd as before.

5. A small Sling with four Tails, to keep on the Dressings: For the making this, take a Piece of Linnen-Cloth, of an Inch and half broad, and half an Ell in length; fold it in half, and cut it all along length-way through the Middle, leaving the breadth of two Inches uncut in the midst.

To apply this, take the Sling by the two upper Ends, with your two Hands, between the Thumb and Fore-Finger; apply the uncut Part on the Nose; bring the two upper Ends behind the Head, then crossing them, bring them again before, and pin them at their Extremities: Take the two lower Tails; bring them behind the Head, making them to cross over the upper; cross them behind, then bring them before, and fasten them to the Patient's Cap one over another, where they end.

It is a general Rule, in the Application of these Slings, to begin with the upper Tails first, and to make the lower cross over the upper ones.

Dressings for the Operation of the Hare-Lip.

The Operation is the stitching of a cleft Lip. The Dressing is as follows. See Tab. 4.

1. This Figure represents the twisting of a Thread round a Needle, past through the Thickness of the two Lips: For the right winding this Thread, you must first turn it three or four times round beneath the Needle, then cross the Thread over the Needle; then pass under it, then over it, then under it, continuing to do in this manner till the Lip be cover'd. If the Cleft be very large, suppose from the Nose to the bottom, you must pass two Needles, sometimes three into the Lip, and twist Threads round each of them, as before.

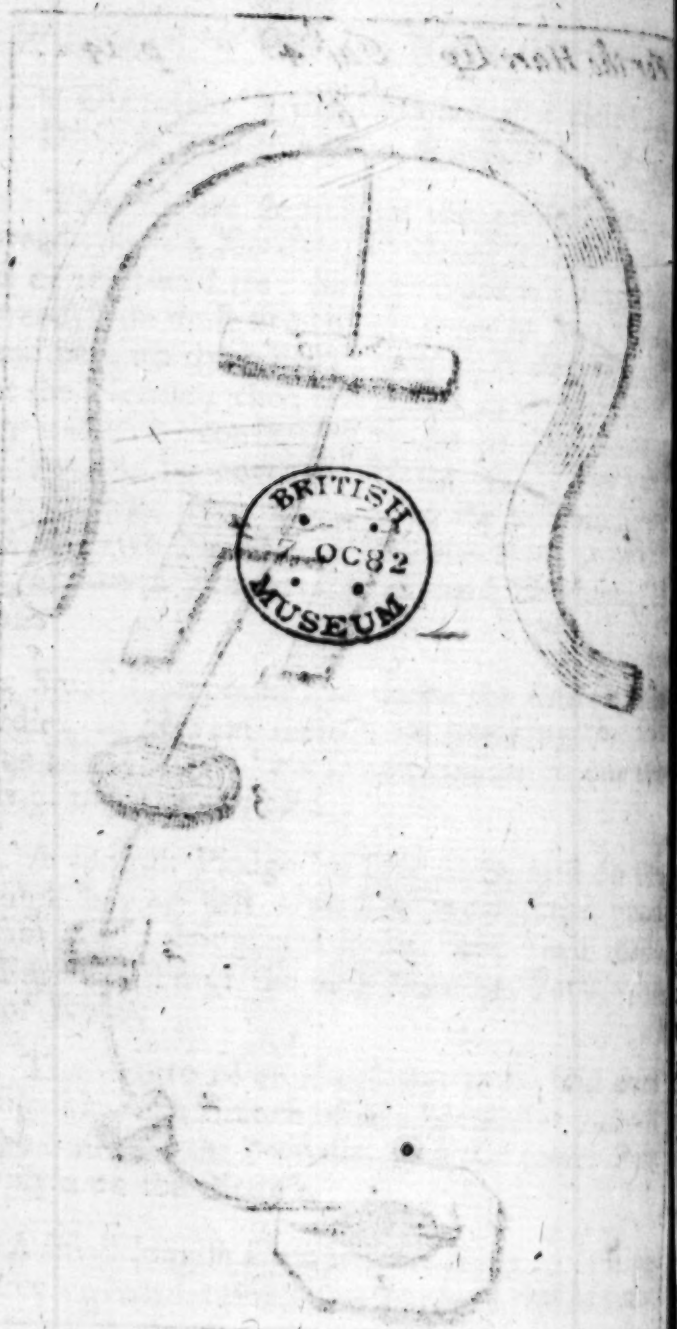
2. Small Compresses put under the Ends of the Needles, to prevent them from pricking the Patient's Lip. It is likewise convenient to cut the Ends of the Needles off.

3. A longish Pledgit of Lint to be laid on the Wound, having first armed it with some good Balsam, or restringent Liquor, and then made an Embrocation of the neighbouring Parts with Oil of Roses.

4. The Figure of an Emplaster to be laid over the Pledgit, each Branch of this Emplaster ascends up the Sides of the Nostrils, and the lower Part is apply'd on the Pledgit.

5. A small longish Compress of Rags, consisting of three or four Leaves, to be put into the Mouth,
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between the upper Teeth and the Lip, being first dip't in some desiccative Liquor, to prevent the Lips from growing to the Gums, if it were necessary to separate them.

6. The Uniting Filler, call'd so because it keeps on all the Dressings. This is made with a piece of Linnen Cloth, near an Inch broad, and an Ell in length, with a Slit in the middle, of an Inch and a half, cut length-ways.

For the applying this, take the Filler in both Hands, put it behind the Head, then bring the two Ends forwards; bring one of the Ends thro' the Slit made in the middle of the Filler, which is to be apply'd on the Lip, then bring back again the two Ends on the hinder part of the Head, over the same Turns of the Filler, bringing them again forwards, to re-pass over the Lip: Lastly, bring them back over the same Turns, and pin their Extremities.

This Bandage may be laid aside, and the Sling with four Tails used instead of it; the Structure of which I have describ'd above, in the Dressings for the Fracture of the Nose: This is to be apply'd to the Hare-Lip, in the following manner: Take the upper Tails in both Hands, between the Thumb and the Fore-finger; apply the middle and undivided Part on the Lip; bring the upper Ends behind, and cross them; then bring them again forward, and pin the Extremities to the Patient's Cap. In the next Place, bring the two lower Tails behind the Head, crossing them, and passing them over the upper ones; then bring them forward, and pin them at the Ends.

Observe not to take off the first Dressings till three or four Days are past, and then unwind part of the Thread which is round the Needle, to see the Condition of the Wound; nor may you draw out the Needles till the Re-union be completed. If there are three Needles, you must begin to unwind the Thread of that in the middle causing an Assistant to stand behind the Patient and press his Cheeks forward, for fear the Wound be tore open by stirring the Dressings.

For the first Days of the Cure, the Patient must only use liquid Aliments, to avoid those Motions of the Lips, which are requir'd for the chewing more solid ones.

Of Dressings where Children are Tongue-ty'd.

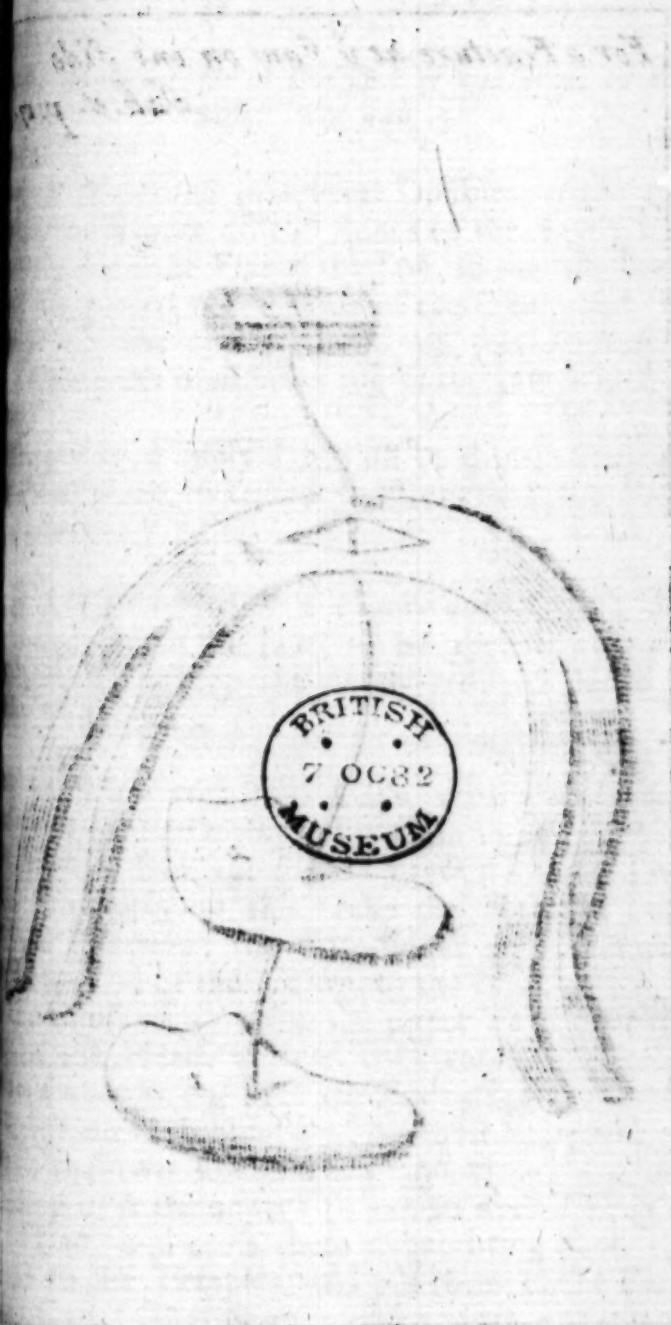
Children are said to be Tongue-ty'd, when their Tongues are bound down to their Gums by a fine Membranous Ligament.

When this Ligament is cut, which hinders Children from speaking, and sucking too, when it is too large, there is no other Dressing required but to put under the Tongue a small Compress of Rags, dipt in some restringent Liquors to hinder the Wound from growing together, and stopping the Blood, if any of the Vessels be cut which are considerable enough under the Tongue. A Solution of Alom is proper enough for the Purpose: When the Wound does not bleed, it is sufficient, that the Nurse from time to time pass her Finger under the Child's Tongue.

Of Dressings for the Uvula.

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For a Fracture at y^e Jaw on one Side
Tab. 5. p. 17.



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of the Dressings for a Fracture of the Jaw, on one Side. See Tab. 5.

1. A Compress in several Doubles, made not like the Figure of the Bones of the Jaw; this apply'd on the Flat of the Jaw, so that the small end be placed on the Side of the Chin, and the larger on the opposite Side, on the *Apophyses*; this Compress must be as big as the Jaw which is hurt.

Before it be apply'd, it must be dipt in *Oxyerate* or Red-Wine, warmed to strengthen the Part, and prevent Fluxion.

2. A Past-board of a Figure and Bigness, accommodated to the Jaw, to be apply'd over the Compress, to keep the newly-reduced Bones in their Situation.

3. A Sling with four Tails, with a great long hole in the Middle to put the Chin in, with which made the Bandage for the Fracture of the Jaw: For the applying this, take the Sling in both Hands, between the Fore-finger and Thumb: Pass the End of the Chin into the Hole which is in the midst of it; bring the upper Tails over the top of the Head, a little backwards, and cross them; then bring back the Ends over the Temples, or on each Side, and pin their Extremities: Take the two lower Tails and cross them, ascending over the upper; pass them over the top of the Head, and cross them; then bring back the Ends to the Temples, and pin them to the Patient's Cap. This Sling must be large enough to cover

cover the Chin, and the whole Jaw ; it ought to be about an Ell long for large Men.

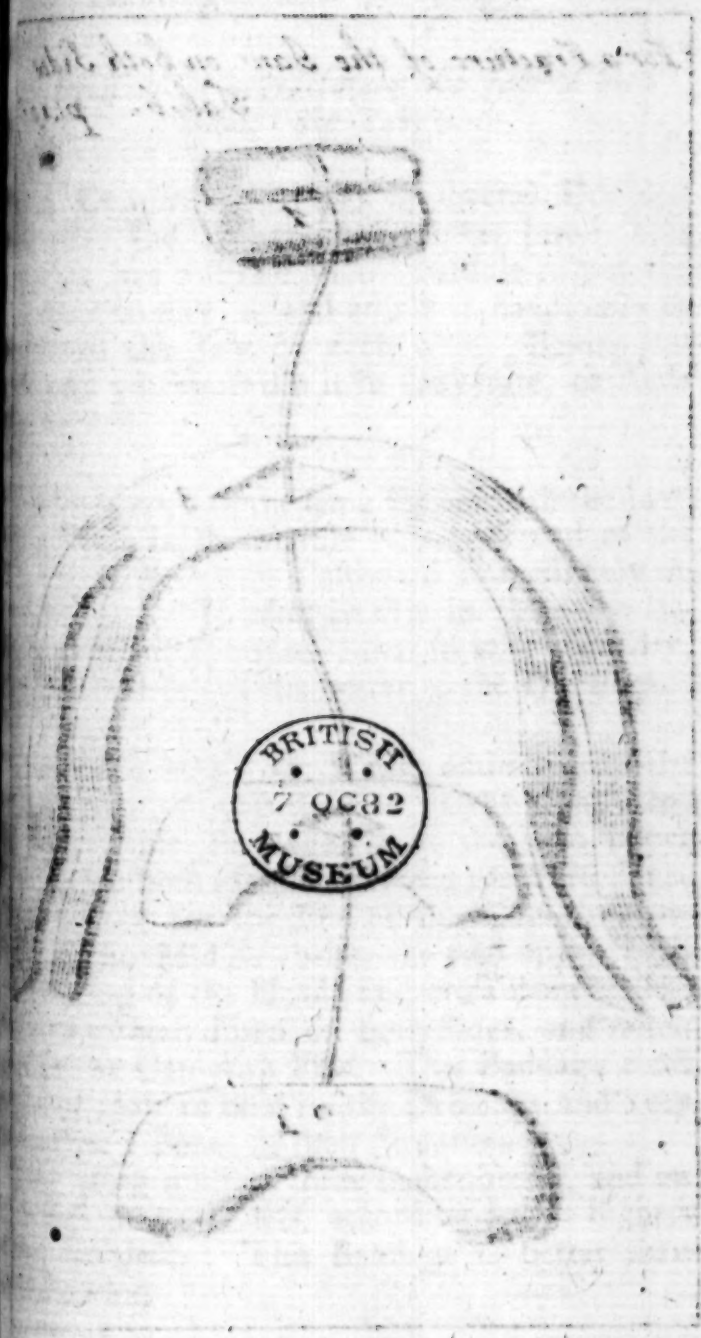
This Bandage is free from Trouble, and is more convenient than the *Capistra*, which the Ancients used ; however, if any one desires to know the way of making those, he may proceed thus. Take,

4. A Roller of three Ells in length, and an Inch and a half broad, rolled up at one End : make two Turns with the End of your Roller round the Patient's Head, passing over the middle of the Forehead, and so round : These two Turns must be precisely one over the other ; then bring down the Roller under the Chin, pass over the Fracture, then ascend, passing near the Corner of the Eye, come over the Head, and descend on the other Side, over the first Turn of the Roller, without leaving any Edging ; then pass under the Chin, to make an Edging on the Fracture ; re-ascend, bringing the Roller over the first Turns, then descend on the other Side, without making an Edging ; but observe, whenever you come thither to make an Edging on the Fracture, still advancing towards the Ear : When you have made several Turns over the Fracture, bring the Roller over the Chin, to strengthen all the Turns which are made over the Fracture : In the last place, re-ascend again behind the Head, and finish all by a Round about the Head, and pin the End of the Roller to the Cap : This Bandage may be made with a double-headed Roller, but a single-headed one is ever to be preferr'd in such Cases as will admit of it, being more commodious, and less embarrassing.

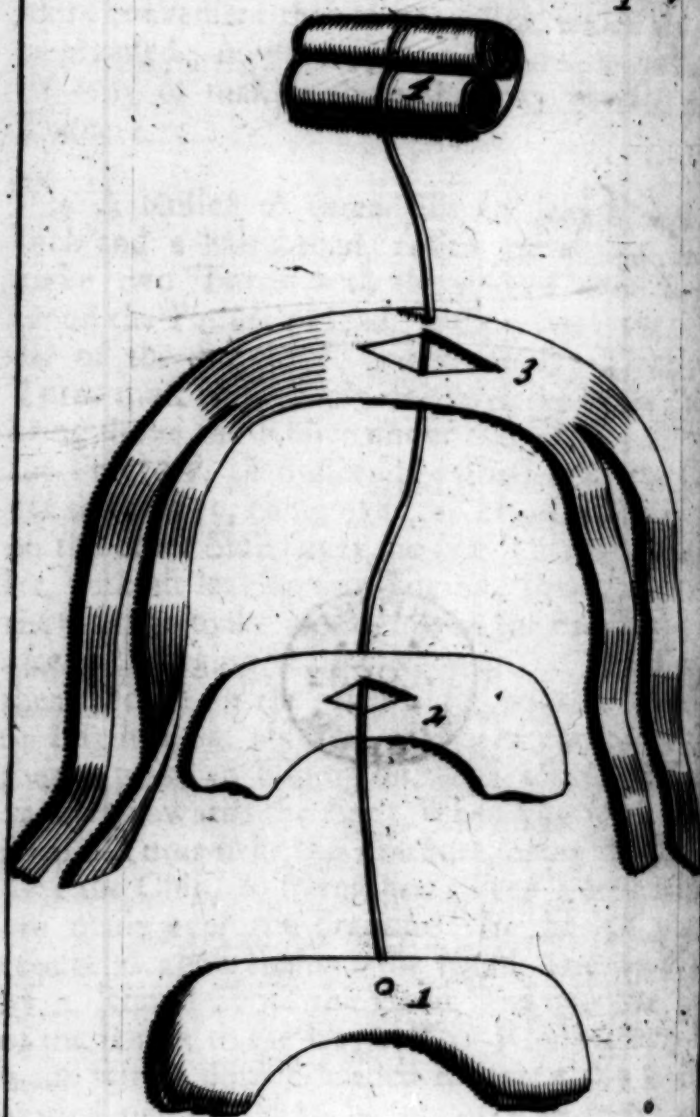
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For a Fracture of the Jaw on both Sides
Tab. 6. p. 29.



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The Dressing for a Fracture of the Jaw on both Sides. See Tab. 6.

1. A Compress of Rags in several Doubles, made after the Figure of the lower Jaw : This Compress has a Hole in the Middle to put the Chin thro' to stay it, and adjust it handsomly to the Flat of the Jaw on each Side. Before you put it on, you must dip it in Oxycrate, or Red-wine heated.

2. A Pastboard of the same Figure with the Jaw, with a Hole in the middle to put the end of the Chin thro' ; Lay this Pastboard immediately on the Compress : It must be dipt in the same Liquors with the Compress, that so when it is dry, it may adjust it self the better to the Dressings.

3. A Sling with four Tails, and a Slit in the Middle of it, to pass the End of the Chin thro'. To make this Bandage, take the two upper Tails, with both Hands, between the Fore-finger and Thumb, put the End of the Chin thro' the Hole in the Middle, bring the two upper Tails over the top of the Head, and cross them there ; then bring them down on both Sides, and fasten them to the Cap with Pins. This Bandage must be pretty close to bind on the Dressings, and keep the fractur'd Bones in their Situation.

This Sling must be three Inches broad, and an Ell long, more or less, according to the bigness of the Subjects : This Bandage is better than the following.

4. A Roller with two Heads, five Ells long, and an Inch and a half broad, for making the Bandage call'd the *Capistrum*. For the applying it take one of the Heads or Balls in each Hand, put the middle of the Roller under the Chin; rise up the Cheek on each Side; passing near the lesser Angle of the Eye, cross your Rollers on the top of the Head; descend behind the Head, where you must cross again; pass under the Chin, and cross there; rise on each Side over the Fracture, re-ascend on the Head, and pass over the first Turns; descend under the Chin; cross; pass over the Fracture on each Side, making Edgings as you come near the Ears; continue as you begun till your Roller be almost spent: Pass the Roller over the Chin, and over your Edgings, to keep them steady; pass behind the Head; cross, and fasten it with a Pin; then make a Round about the Head, passing over the Fore-head; and, in the last place, pin the two Ends of your Roller to the Patient's Cap.

All these Bandages with two Heads are very troublesome to make, and therefore it is better to make use of a Roller with one Head, as was shewn before in the Fracture of the Jaw on one Side; but the Sling with four Tails, and a Slit in the middle, is better than either of these two last, it being more simple, and less difficult.

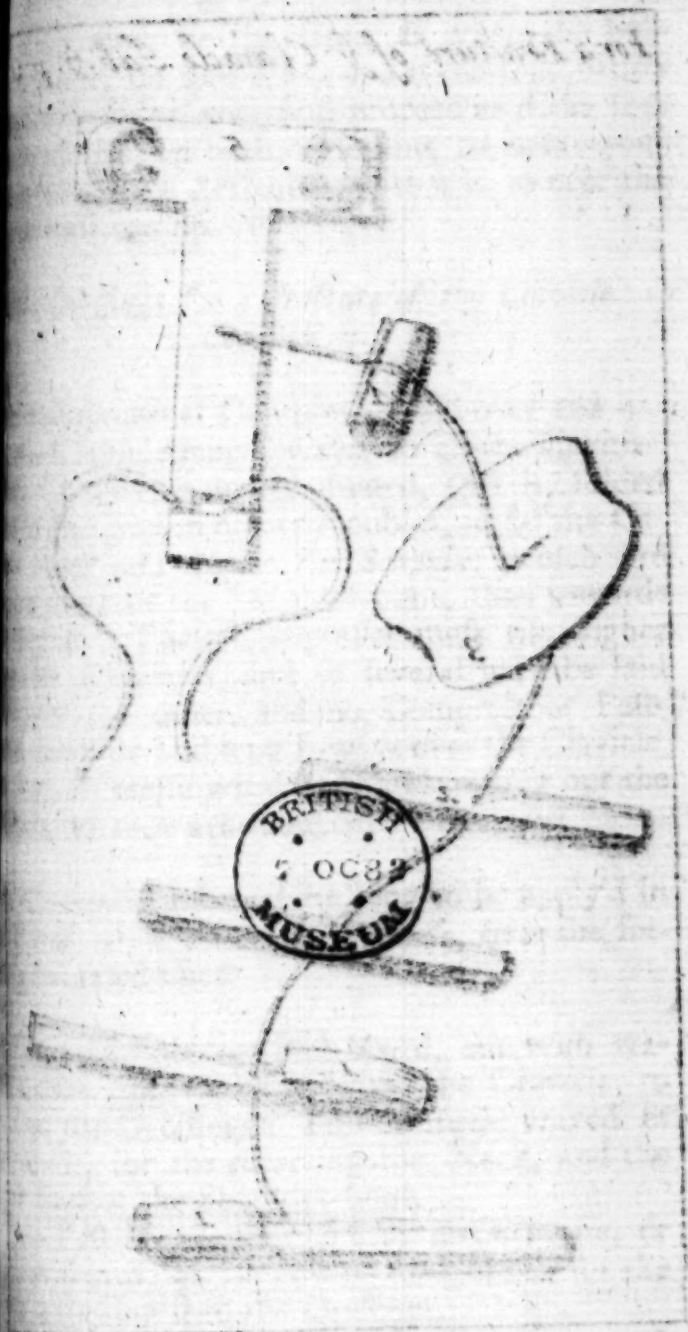
The Dressings for a Luxation of the Jaw.

These are the same as for a Fracture of this Part. If the Dislocation be only on one Side, the Dress-

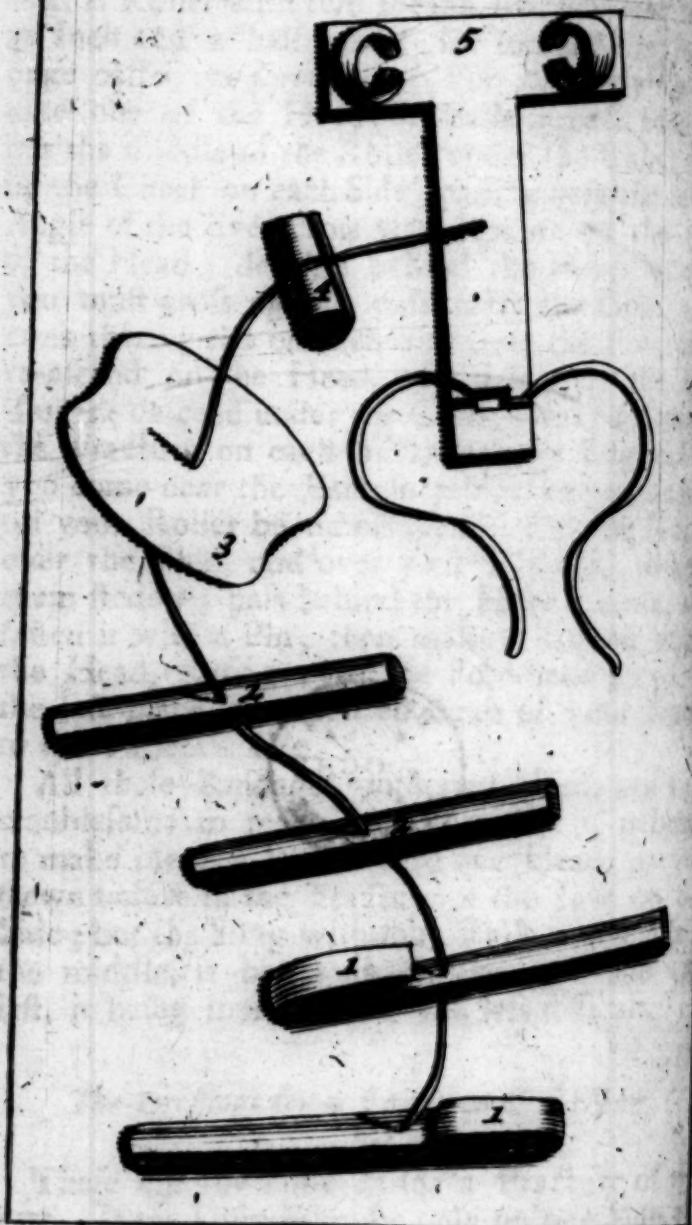
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For a Fracture of y^e Clavicle Tab. 7. p. 23



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Bandages and Dressings. 21

Dressings must be the same, as when the Fracture is only on one Side, and if the Dislocation be on both Sides, you must proceed as if the Jaw were fractur'd on both, observing to make your Dressings near the Articulation, that is, as near the Bone as well can be.

The Dressings for a Fracture of the Clavicle.

See Tab. 7.

1. Longitudinal Compresses, laid over and under the Clavicle length-ways, to fill the Cavities. These Compresses are graduated, that is, folded back at the End in divers Doubles, to fill the Cavities over and under the *Scapulae*, which are deeper towards the Shoulder-bone, than towards the Breast. These Compresses must rise higher than the Clavicles, and so several may be laid one over the other, and no Compress or Past-board must be laid length-ways over the Clavicle, for fear of pressing it down, and putting out the Bones after they are reduced.

2. Compresses something long to be apply'd in the Form of a *St. Andrew's Cross*, over the former graduated ones.

3. A great oblong Past-board, cut with waving at the Ends to be laid over the Clavicle, to keep on the Dressings: This is made waved at both Ends, for the receiving the Neck, and the upper End of the Shoulder-bone.

This Past-board must be dipt in Oxycrate, or Wine warmed, as the Compresses were, for the better adjusting it to the Dressings.

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4. A Roller of five Ells in length, and an Inch and a half broad, with one Head, for making the Bandage call'd *Spica*, when the Fracture is near the *Humerus*. For the making this, bring behind the End of the Roller, under the Arm-pit of the Arm opposite to that which is affected, and let some Assistant hold it there with his Hand; then pass with the other End over the Shoulder affected; pass under the Arm-pit, re-pass over the Shoulder, and there make an X. bring the Roller over the Breast, re-pass under the Shoulder, and there engage the End of the Roller; return behind, pass over the Shoulder under the Arm-pit, return above, so as to make an X nearer the Neck than the former; continue thus to make diverse X's on the fractur'd Clavicle; with the remaining part of your Roller, make two Rounds about the upper End of the Arm, and so fasten the Roller.

When the Fracture of the Clavicle is very near the *Sternum*, the Bandage call'd the *Capeline* is usually made, tho' the *Spica* is really more convenient, and less troublesome; because it is done with a Roller with one Head, and the other requires one with two, and the Help of another Person:

If any one would make the *Spica*, he must make a great number of X's to cover the length of the Clavicle; and to keep down every X very well, he must pin it in the Place where it crosses: But as for those who like the *Capeline* better, they may make it in this manner. Take a Roller of six Ells in length, and an Inch and a half broad, rolled up at both Ends: Apply the

Middle

Bandages and Dressings. 23

Middle of this on the Fracture; bring one of the Ends straight over the Breast, so that it may make a right Angle with the Clavicle, and order some Person to hold it there; then descend with the other End over the Back obliquely, and pass under the Arm-pit of the Arm opposite to the fractured Part, having first put a good Compress of Linen Rags under that Arm-pit, to keep the Shoulder from galling it, which would happen without such Precaution; then bring the Roller over the Breast, and pass over that End of it which the Servant holds, to engage it under; then bid him raise the End he has in his Hand, and bring it over the Fracture, so as to make an Edging on that you bring over the Shoulder: then let him go down the Patient's Back; then bring the End which you hold in your Hand over that which the Servant holds on the Patient's Back, so as to engage his under yours; bid him raise his End of the Roller over the Fracture, and make an Edging over the first Casts of the Roller, whilst you bring yours under the sound Arm, and re-pass it over the Breast, as before, and engage that which he holds; Continue these Edgings over the Clavicle till it be wholly covered, and after fasten your Roller by several Turns about the Patient's Body.

A Cross of Steel to be apply'd on the Patient's Back, like that us'd to prevent Children from growing crooked, for keeping the Shoulders back, and hindering the Clavicles from falling out: The Branches of this Cross must be two Inches broad, and must be cover'd with Dimity, or some other Stuff. The Traverse must pass from one

one Shoulder to the other, and the Perpendicular from the top of the Spine to the bottom: There must be a Hole at the bottom, to pass two Ribbons viz. one of each Side, which are to be ty'd round the Body, to keep the Cross close to the Back; for as the Perpendicular is more or less strait to the Spine, so the Shoulders are more or less drawn but this must be govern'd by the Discretion of the Surgeon. If the Cross do not draw the Shoulders far enough back, you must lay a thick Compress along the Spine, under the Perpendicular of the Cross, which yet must not go quite down; and tie straitly the End of the Cross with Ribbon and by this means you will draw them more strongly back. You must put the Patient's Arms thro' two Iron Rings, which are at the Ends of the Cross-bar; these two Rings may be taken off, and fasten'd to the Cross at Pleasure. Their Structure may be seen in the Figure.

The Dressings for a Dislocation of the Shoulder-bone
See Tab. 8.

1. A small Pellet of Linnen put under the Patient's Arm-pit, to keep in the Head of the Bone after it is reduced.

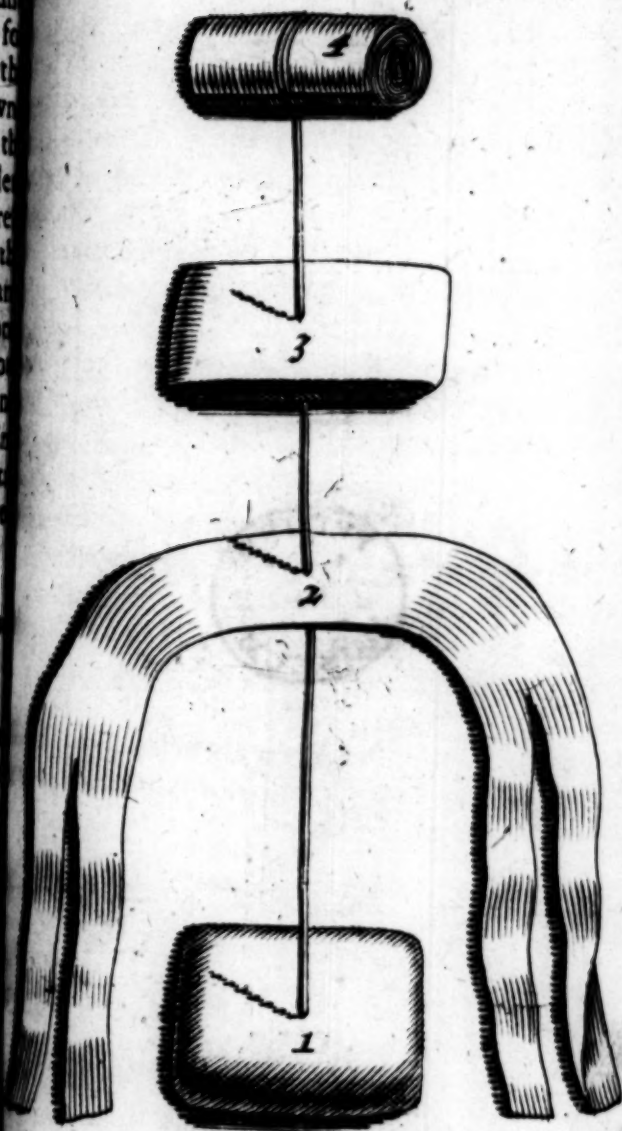
2. A Sling with four Tails, to keep the Pellet under the Patient's Arm: The undivided part of the Sling is to be apply'd on the Pellet, and the four Tails rais'd on the Shoulder, where they must be cross'd and fasten'd with Pins.

3. A Compress of Linnen, in several Doubles to be put under the sound Arm-pit, to keep the Bandage from galling it.

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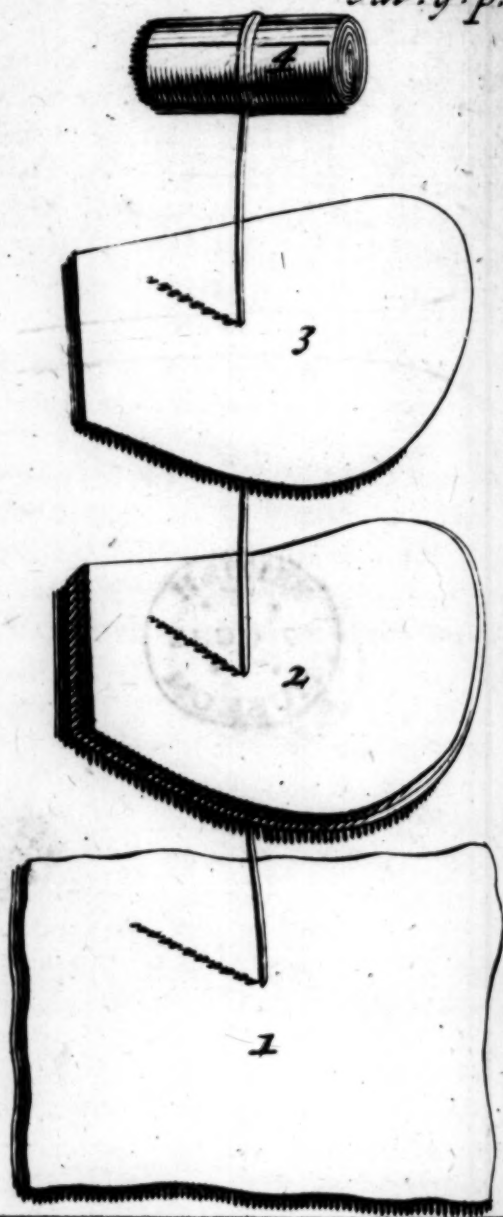
For a Dislocation of the Shoulder.

Tab. 8. p: 24.



For a Fracture of y^e SCAPULA.

Tab. 9. p: 25.



25. A Roller of five Ells in length, and three
 broad, with one Head, for making the
 bandage call'd *Spica*: This is made as that be-
 fore described, for the Fracture of the Clavicle,
 which would be useless to repeat. Remember, be-
 fore you use the Roller, to steep it in some con-
 venient Liquors, as Oxycrate, or Red-Wine
 heated; and to allay and appease the Pain, make
 an Embrocation with good Oil of Roses warm,
 before you apply the Dressings.

The Dressings for a Fracture of the Scapula.

See Tab. 9.

1. A simple Rag dipt in Oxycrate, or Red-
 Wine heated, or spread with *Unguentum Album*
refrigerans, and so apply'd to the *Scapula*, as the
 Surgeon shall think most convenient, after an
 Embrocation with good Oil of Roses, to appease
 the Pain.

2. A great Compress in several Doubles, most
 commonly made in the Figure of the *Scapula*; but
 that's a needless Circumstance, for it is sufficient
 for it to cover the *Scapula*, and it would be diffi-
 cult too, to apply the *Apophyses* precisely on the
Apophyses of the Bone; and therefore I believe
 that a great square Compress to cover the whole
 Shoulder, would be better, as it is more easily
 made.

3. A large Past-board to be apply'd over the
 preceding Compress, which ordinarily is made
 of the Figure of the *Scapula*; but this is needless,
 pro-

provided it cover the whole Compress : I would have the Pastboard dipt in the same Liquor with the Compresses, to soften it, that it may be better adjusted to the other Dressings.

4. A Roller with one Head, two Inches broad and four Ells in length, for making the Bandage call'd *the Star* : To make this, bring the Roller behind, and put the End of it under the sound Arm-pit, and let an Assistant hold it there : Bring the Head that is in your Hand under the Arm-pit of the Side affected, and then over the Shoulder to make an X on the middle of the Back, by crossing over the first Cast ; Pass under the other Arm-pit, over the Shoulder, then descend over the Back, to form an X on the middle of the Back which may make an Edging with the first Casts : continue all these Turns of the Roller as you began, by making Crosses or X's with Edgings on the Back, till the *Scapula* be both cover'd, for the Bandage cannot be made for one of them alone : You may observe that all the Turns of the Roller are over the Back and Shoulders, and none over the Breast.

The Dressings for a Fracture of the Shoulder-bone.
See Tab. 10.

1. A large piece of Linnen-Cloth cut lengthways thro' the Middle, at each End, as the Slings : This Cloth is apply'd immediately round the Arm, and over the Fracture, being first dipt in Oxycrate or warm Wine, or spread with *Ceratum Refrigerens*, which may likewise be dipt in Wine or Oxycrate. This Cloth is cut at both Ends, for the better adjusting it to the Part.

Fracture of the Shoulder Bone

Tab: 10.

p: 26.





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2. A Roller of two Inches broad, and an Ell and a half long for great Persons, rolled at one End: This Roller is apply'd immediately over the first Cloth; Make three Rounds pretty strait about the Fracture, then ascend to the upper part of the Arm, making divers small Edgings: When you are arrived as high as you intend, finish with some Rounds, and pin the Extremity of the Roller, which you must double, for fear, lest the Pins break thro' the Threads. I think it is needless to bring it round the Body to stop it, as some Practitioners direct; these Turns of the Roller are very troublesome, and I do not believe they are more secure than those around the upper End of the Arm, where it is slenderer than in the midst.

3. A Roller with one Head, two Inches broad, and an Ell and a half in length: This Roller is apply'd over the former, making two Rounds about the Arm over the Fracture, and descending with small Edgings the whole length of the Arm, you pass over the Elbow without covering it, and end with several Rounds about the Cubit near the Elbow.

4. Four Compresses of Rags in several Doubles about six Fingers breadth in length, and two in breadth, which must be apply'd on the middle of the Fracture, according to their length around the Arm, without touching it, being first dipt in Oxycrate or Red-Wine heated.

5. Four

5. Four small Splints of Deal, or other light Wood very light and thin, of the length and breadth of the four longitudinal Compresses just mention'd ; each Splint is apply'd on each Compress length-ways, quite round the Arm : These Splints must be made round at the Ends, for so they are nearer, and do not hurt the Patient with their Angles.

6. A Roller of two Ells in length, and an Inch or two in breadth, rolled with one Head, to be apply'd immediately over the Splints : In using this, make two Rounds about the Splints immediately over the Fracture ; then ascend by Edgings, and after descend, and fasten it where it ends below the Elbow.

7. Two great Past-boards handsomly made round at the End, which are to be laid according to their length round the Arm, so that they may embrace the Dressings without touching one another : They must be of the length of the Arm. These Past-boards must be dipt in warm Oxycrate, before they are laid on ; for in drying they become exceeding hard, and will take the round Figure of the Arm, and apply themselves very uniformly to the Dressings, which they equally compress in every Part.

8. Three or four Ribbons long enough to go round the Past-boards, and an Inch and a half broad : You must begin to apply that in the middle on the Past-board, for if you should begin
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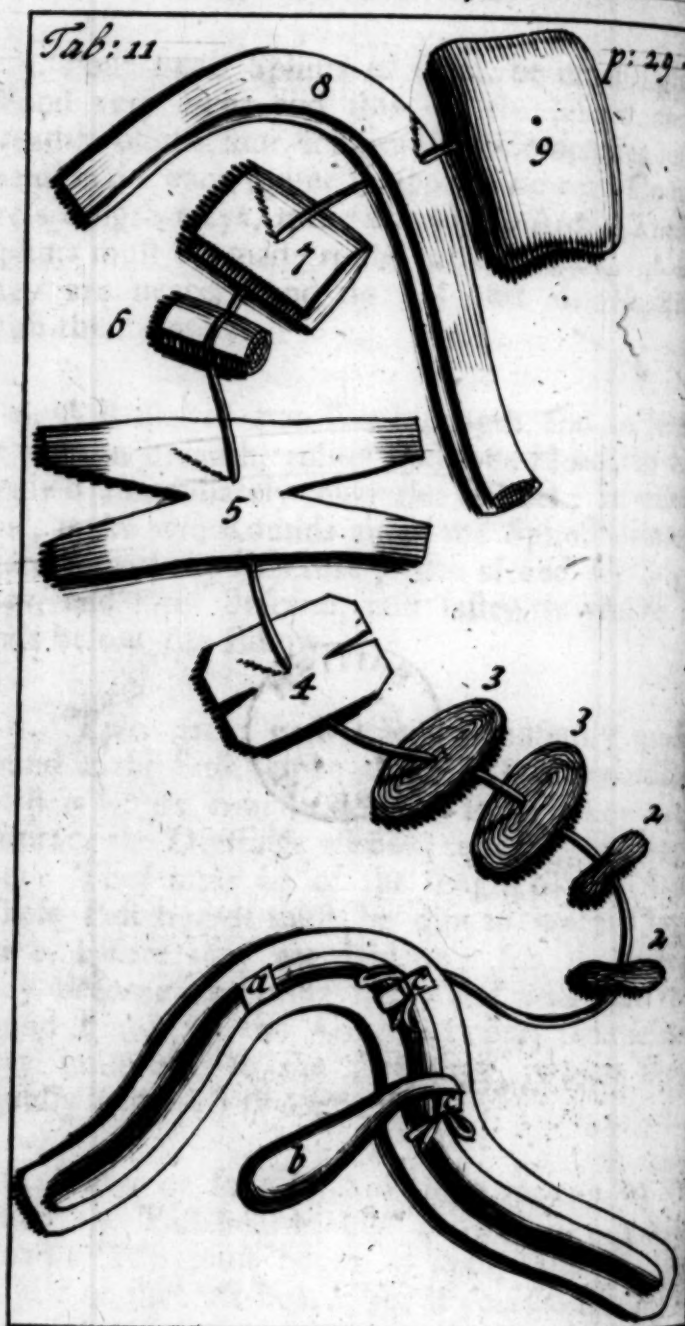
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For an Ancurism.

Tab: 11

p: 29.



tie them at one End, the other would rise; and must needs prove a great Inconvenience.

A great Napkin for the making a Scarf for the fractur'd Arm: To make this, take both Hands one of the Edges of your Cloth, apply the middle of this under the Arm-pit, raise the four Ends of the Cloth, in which you have engaged the Patient's Arm; having made him bend his Elbow, bring the four Ends over the Shoulder, and so tie them in a Knot: This Scarf made of black Taffety, when the Patient is up, for he may rise and walk abroad some Days after the Fracture is reduced.

Th: Dressing for an Aneurism in the Arm.

The true Aneurism is a Swelling form'd by the Dilatation of the Artery, and caused by the Primony and Corrosion of the Humours, which sensibly stretch its Tunicks, in such manner, that the Blood dilates it by its continual striking on it, and forms a Tumour call'd an Aneurism.

The false or spurious Aneurism, is an entire Rupture of the Coats of the Artery, which gives way for the Effusion of Blood, into the Porosities of the Flesh.

The Operation consists in opening the Artery, to discharge the coagulated Blood, and cutting the Patient, by the Help of the following Dressings. * See Tab. 11.

1. The Figure representing an Aneurism. *A* is the Artery of the Arm; *B* shews the Swelling or Aneurism, which the Blood has gradually formed by Impulsion; *C* represents the Ligature made about

bout the Artery, both above and below the Aneurism. This Ligature is made with a good waxed Thread, passed through the Eye of a crooked Neeple, which is so blunt as not to pierce at the End. This Needle is to pass under the Artery, and you must begin, by making the Ligature above the Swelling, which is to be evacuated: Make a simple Knot with the Thread, and place, if you think fit, a small Compress on the first Knot, on which make two Knots, as you see in the Figure: Do as much below the Swelling because there always comes a little Blood, if it be not ty'd.

I think there ought not to be any Compress laid on the first Knot, because, when it becomes dry, it shrinks, the Ligature slackens, and the Blood may flow out.

2. Several Dossils sprinkled with Restraining Powders, with which the Wound is fill'd after the concreted Blood is removed.

3. Oval Pledgits with the same Restraining Powders.

4. An Emplaster covering all, which you must snip with the Scissors at each End, for the applying it better to the Bending of the Arm.

5. A Compress cut with pretty deep Waves at both Ends: The undivided Part of this, is to be put on the Bending of the Elbow, over the Emplaster, and the four Ends rais'd round the Arm.

4. A Roller with one Head, six Ells in length, and an Inch or something more in breadth : Begin this Bandage by several circular Turns below the Elbow, and then lay on a small Compress.

5. A small Compress laid over the Dressings : This must be made as those in a common Bleeding, but thicker, and laid along the Arm, quite to the Arm-pit ; the longitudinal Compress marked.

6. Which must be thick, and as broad as three joints of the Fingers : Take your Roller up, with which you have made several Rounds below the Elbow, and make several Turns over the Swelling, on the Bending of the Elbow, as in an ordinary Bleeding ; then ascend with several little Bindings, the whole length of the Arm, over the longitudinal Compress, which you have laid all along the Artery, to hinder the *Impetus* of the Blood from forcing the Ligatures, and fasten your Roller by several Rounds about the upper end of the Arm, or, if you will, around the Breast.

This Compress stops the Rapidities of the Blood, and prevents the Roller from being too tight.

The Artery not being in so great a Motion, the Re-union is the more easily accomplished.

7. A soft Pillow on which the Patient's Arm a little bent is repos'd, so that the Hand may be a little higher than the Elbow, whilst he lies in his bed.

You

You must bid him bend and extend his Arm a little from time to time, for fear the glair Matter, which gathers about the Joint, should thicken, and become lame.

You must take off the Dressings as late may be.

The Dressings for Bleeding. See Tab. 12.

1. A little square Compress in several Doubles. This is made with a square Piece of a Linne Rag, pretty soft, and about as large as the Palm of a Man's Hand : Fold this bit of Cloth in the middle, and press strongly the whole length of this Fold, with your Thumb to mark it ; then unfold the Cloth, and fold it at each End, reaching to the Fold you first of all made : Lay the two Ends directly over one another, by doubling the Cloth in the great Fold made before in the middle ; then fold again this Cloth through the middle, and so you will have a good square Compress handsomely made ; and if there be any loose Threads sticking out, cut them off with your Scissors.

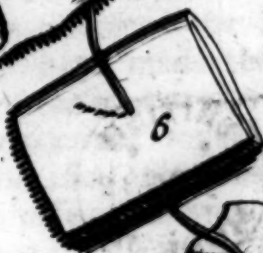
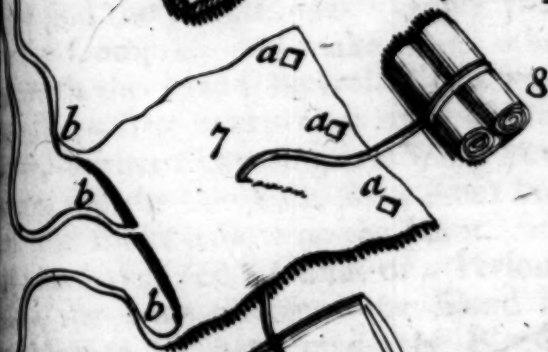
For applying this Compress, you must take the Orifice between the Fore-Finger and Middle Finger of the Right Hand, if it be the Left Arm or the Left, if it be the Right Arm you have bled, and close it well between the Ends of your Fingers, and take the Compress with the other Hand to wipe the Orifice, because if there remain'd any Blood between the Lips of the Wound, it would dry there, and hinder the re-uniting of the Wound. Apply the middle of your Compress on the Wound, on that Side which you have not bled,

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For Bleeding . Tab: 12. 13 . p: 32 .



For an Issue . p: 35





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blooded, in wiping it, and keep it on with the Ends of your Fore-Finger and Middle Finger; then take with the other Hand the Roller, one End of which you must hold between the Thumb, the Fore-Finger, and the Middle-Finger, and hold the Extremity of the same End in the Hollow of your Hand, with the End of the Little-Finger and the Ring-Finger: Apply your Roller over the Compress, and make of the other longer End, with the Hand, several X's, always on the Wound, passing every time over and under the Elbow, without covering it: When your Roller is spent, tie the two Ends in a Knot behind the Arm, and make a Bow on the Knot.

If you have bled a Child, or a Person in a *Delirium*, or have observed the Blood in a violent Motion, or have made the Bleeding over Night, and apprehend the Patient should open his Arm, which might make his Bandage to fall off, and occasion his losing Blood in his Sleep; in this case, you must make the Knot above the Elbow, and behind the Arm, because this will prevent the Patient from extending his Arm: The Fillet too must be made of a strong Cloth, not much worn, lest it break in the Effort. If there be none of the Reasons before-mention'd to the contrary, you may make your Knot behind the Arm, and below the Elbow, with a Fillet of an Inch and a half broad, and five Quarters long, more or less, according to the bigness of the Patient's Arm: Observe, that in making the Turns of your Fillet round the Arm, it must be very much bent, for if it be a little open, the Bandage will slip, and not keep tight.

Ob:

Observe further, if you please, that if you have made too small an Orifice, in the Place of the Bleeding, which almost always is, by reason the Impulsion of the Blood is more vehement thro' smaller Orifices than greater ones, that then you must dip your Compress in cold Water, or Oxycrate, before you apply it, having first compress'd, or divers times closed the Wound between your Fingers, to express the Blood shed under the Skin, which, by its Stay there, causes a lasting Discoloration. When the Orifice is large, this Accident does not happen, and then you must not wet the Filler, because it becomes hard, and makes the Patient uneasy; besides, being wet, it does not so well stop the Blood; but, on the other hand, it checks the Inflammation, and so you may do as you please.

As for the Ligature in bleeding, let the Filler be of Scarlet, or other red Cloth, of an Ell in length, and as broad as the Ends of two Fingers; take it with both Hands, between the Thumb and Fore-Finger: Apply the Middle of it an Inch above the Elbow, or the Place where you open the Vein; turn it round the Arm, observing not to streighten it much the first Turn, for fear of hindering the Blood from flowing to the Part. When this happens, you must slacken it. After the first Turn is made, you must make a second, and make a Bow behind the Arm without a Knot.

Observe that the Bow must be turned upwards towards the Shoulder, because if you made it downwards it would incommode you, and hinder you, in making your Frictions.

The Ancients made little Frictions from below upwards, with the Ligature on the Place of the intend-

attended Orifice before they ty'd it round the
Part, because being ignorant of the Circulation,
they said this would put the Blood in Motion.
Tho' this Reason will not hold now-a-days, you
may nevertheless do this, because it warms the
Part, and brings Spirits to it, and so the Blood
flows more freely out.

The Dressing for a Bleeding is so frequent,
that I ought to suppose all young Surgeons know
how to make it; but for this Reason I have spoke
so much of it, since it would be a great Dis-
turbance for any one, not to be able to make me-
thodically one that is so common.

The Dressing for an Issue: See Tab. 13:

An Issue is an Ulcer in the Skin, made by
Causticks apply'd on it.

1. An Emplaster laid over the Caustick, to
keep it on the Part.

2. A Compress in several Doubles to be laid
over the Emplaster, which must be larger than
the Emplaster.

3. A Roller of two Inches broad, and an Ell
in length, for keeping the Caustick close to the
Part.

4. A Pea or small Ball of Orris Root to be
put in the Hole, made by the Caustick, to keep
the Ulcer open.

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5. An Ivy-Leaf laid over the Pea, to cool the Part, in the room of an Emplaster.

6. A Compress of Rags in several Doubles, to be laid over the Leaf or Emplaster.

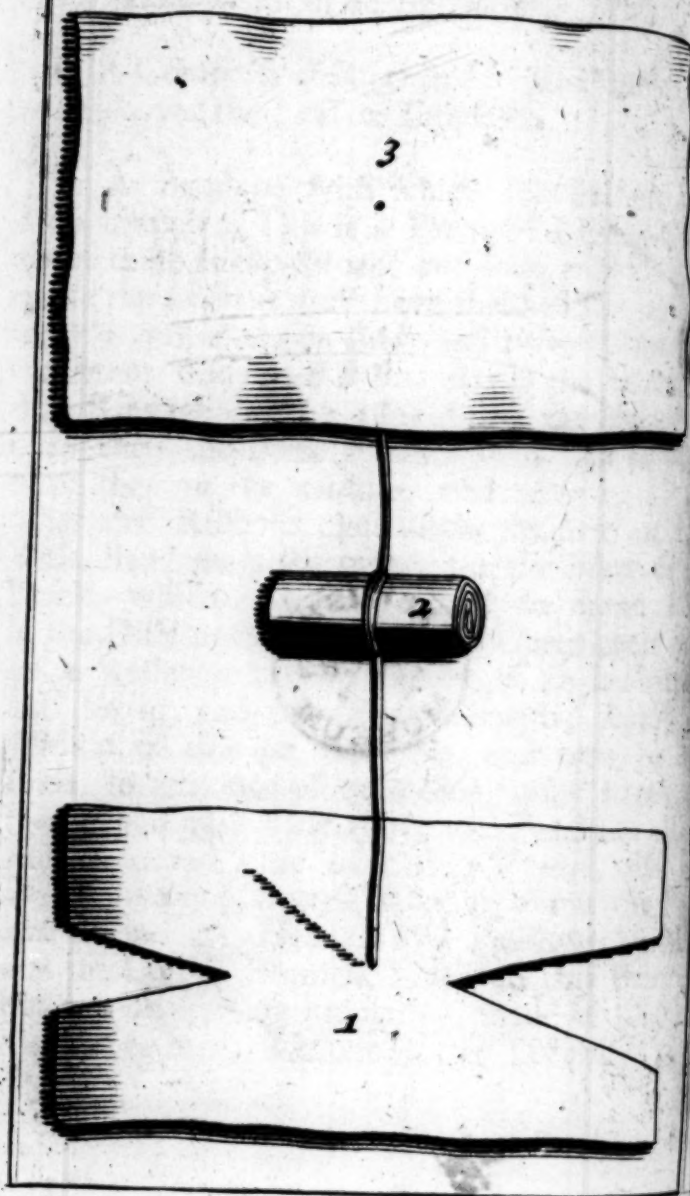
7. A Bandage with which the Patient may dress himself : This is a Piece of Linnen-Cloth about three Inches broad, and long enough to go round the Arm; it must have three Holes, as those mark'd *A A A* at one End, and three Ribbons at the other End, as *B B B*. Apply the Middle of this Bandage on the Issue; pass the three Ribbons thro' the three Holes : It is best to begin with that in the middle, and after to tie the other two Ribbons close about the Arm or Leg. This Bandage is not proper for the Nape of the Neck, which is a usual Place to make Issue in the Distempers of the Eyes, where there must be a Roller with two Heads, of an Inch and half broad, and two Ells in length : Apply the Middle of this on the Issue, and turn its two Ends, to wit, one of each Side, quite round the Head, passing a little above the Forehead; then pass a second time over the Wound, and reascend, making diverse Rounds about the Part and round the Head. The Perriwig in Men and the Coif in Women, hides all this Bandage but a good sticking Emplaster, made of Mastick may serve turn, without all this Trouble.



For a Dislocation of the Elbow.

Tab: 14.

p: 37.



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The Dressing for a Dislocation of the Elbow.

See Tab. 14.

1. A Compress made with a single Linnen-Cloth, three Inches broad, and big enough to go round the Arm : It should be cut at the two Ends, after the manner of Slings, that it may fit better on the bending of the Arm.

Apply the middle of this Sling on the bending of the Elbow, and turn its four Tails round the Arm, having first steeped them in Oxycrate, or Wine heated.

2. A Roller with one Head, of an Inch and a half broad, and five Ells long, for making the Bandage : Make a Round about the lower Part of the *Humerus*, with the End of your Roller to stay in : Descend on the bending of the Arm obliquely as in Bleeding, and make a Round below the Elbow, on the upper Part of the *Cubit* : Re-ascend on the bending of the Arm, to make an X on the first Cast of the Roller : Continue to make these X's, with Edgings on the Elbow, till it be quite cover'd : Rise quite to the upper Part of the Arm with Edgings, there make several Rounds, and pin the Roller. Steep the Roller in Wine heated, before you use it.

3. A great fine Linnen-Cloth to make a Scarf with, to suspend the Arm, if the Patient will not keep his Bed : We have already shewn the Manner of using this in the Dressings for a Fracture of the Arm.

The Dressing for a Fracture of the Cubit, whether one or both Bones be broken. See Tab. 15.

1. A great Linnen-Cloth, dipt in hot Wine, or Oxycrate, before it be laid on the Fracture of the Arm : Give it a Cut at each End with a Pair of Scissors, to apply it the more handsomly,

2. Two pretty big Compresses very thick, of the length of the Cubit, and so broad as to exceed the depth of the Arm : Apply one of the Compresses on the flat Side of the Arm the whole length, and the other outwardly likewise over the whole length. These Compresses must be deeper than the Arm, that so the Roller may not bear on both Bones, as it commonly does, because there is an Interstice between the Bones, into which the fractur'd Ends would not fail to fall if compress'd by the Bandage, and cause a great Deformity, which, by this means, is prevented.

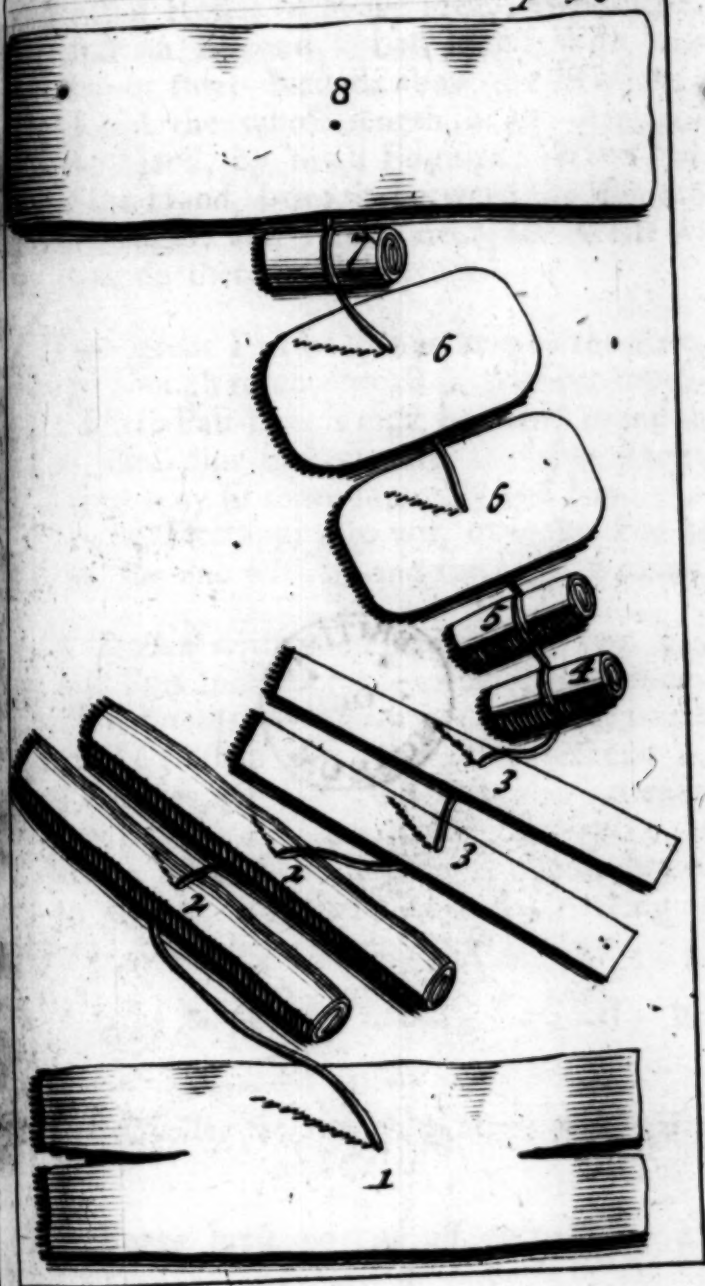
3. Past-boards or Splints of Wood very thin, as long and as broad as the Compresses over which they are laid length-ways.

4. A Roller with one Head, an Ell and a half long, and two Inches broad, apply'd immediately over the Splints : Make two Rounds over the Fracture with the End of the Roller, which must be very close : Ascend with several Edgings, bring it above the Elbow, and, ending there with several Rounds, pin it.

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For a Fractur of $\frac{1}{2}$ Cubit. Tab: 15.

p: 38.





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5. Another Roller with one Head, two Inches broad, and an Ell and a half long: With this make two or three Rounds about the Fracture; then descend the whole length of the Arm towards the Hand, by small Edgings: When you are near the Hand, bring it between the Thumb and Fore-finger, and return over the Wrist to make Rounds there, and so pin it.

6. Two great Past-boards as long as the Arm, and large enough to encompass it, without touching it: These Past-boards must be made round at the End, and dipt in Oxycrate, to fasten them, that so they may fit more smoothly and handsomely over the Dressings; to wit, over the Flat of the Arm, the one within, and the other without.

7. A Roller with one Head, about two Ells long, and two Inches broad, to be apply'd round on the Past-boards; begin by several Turns round the Middle; then rise, and after descend by several Edgings, pinning the Roller where it ends. You may decline using the Roller, and fasten the Past-boards with three or four Ribbons, beginning to tie the middle one, and observing to make the Bow behind the Arm.

8. A large Napkin for making the Scarf as before.

The first Dressing for the Amputation of the Arm and Cubit.

The Bones must be cut off, when they are broke into several Pieces, or have been carious

for a long Time, or there have been incurable Fistulas in the Joints, or the Pieces of Bone are sunk in the Flesh or Tendons, where they prick the Nerves or Vessels, so that they cannot be reduced to their first Condition: When the Operation is over, the Dressing is as follows. See Tab. 16.

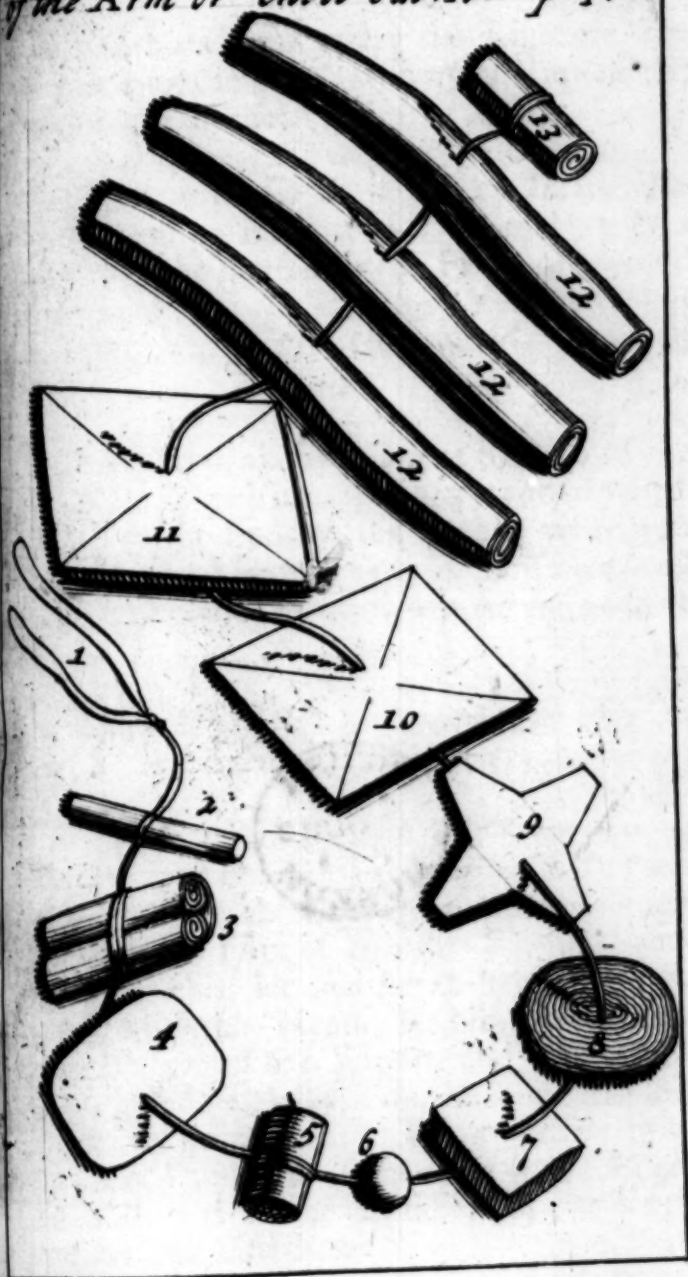
1. Waxed Threads for making a Ligature on the Artery, after the Operation: They must be waxed to prevent their rotting, and must be made of a good double Thread, about a Foot long. For the applying them, take hold of the End of the Artery with your *Forceps*: This *Forceps* shuts with a little Ring, which is brought down to the farther End of the Branches, so that by this means of it self, it holds fast the End of the Artery: Let a Servant hold the *Forceps*, then pass into the Flesh, at the Root of the Artery, a crooked Needle, threaded with a waxed Thread, drawn to the Middle: Prick it again on the other Side of the Vessel, as at first; then take the two Ends of the Thread, and tie it close about the Artery, taking Care, however, not to cut it.

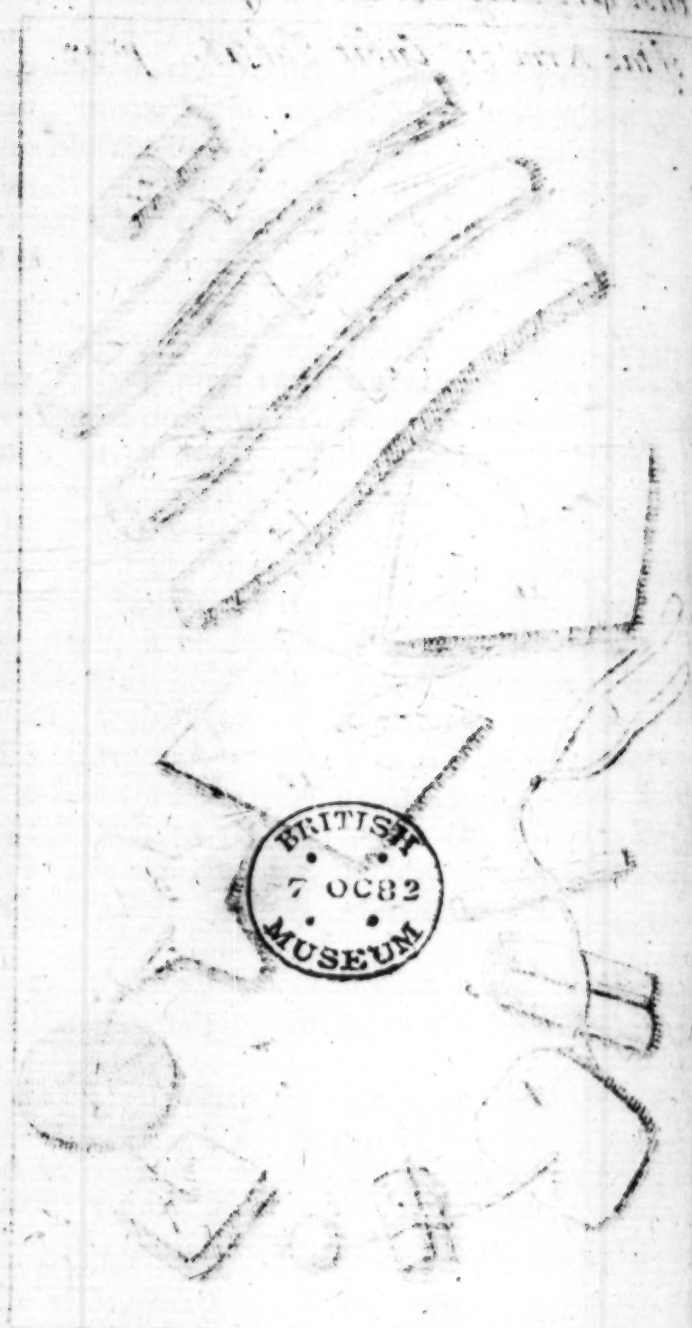
2. A Stick of Wood with which the Ligature is streighten'd, for stopping the Blood.

3. A Ligature of Cloth, an Inch and a half broad, and an Ell long, with which the Arm is to be bound: Make two Turns with this Ligature, which must after be straiten'd with the Turniker, and therefore need not be quite close at first.

First Dressing For an Amputation

of the Arm or Cubit Tab: 16. p: 40.





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4. A Past-board put under the Ligature, for fear of pinching the Skin, when you straiten the Part with the Turniket.

5. A Ligature of Cloth, about an Inch and a half broad, and an Ell in length, for making two Rounds about the Arm, near the Place you would cut, to keep the Flesh fast: You need not straiten it with the Past-board, the Hands being sufficient.

6. Balls of Tow, about as big as the End of the Thumb, filled with Vitriol grossly powder'd, which are apply'd to the Ends of the Vessels, when you do not make the Ligature as before: There must be as many of these, as there are Arteries which shed Blood.

7. A small Compress in several Doubles, to keep the Vitriol Buttons on the Artery.

8. A great round Pledgit of Tow, armed with Restrington Powders, as *Mastick, Bole, Terra Sigillata*, with which the Part amputated is cover'd, to stop the Flux of Blood. For the handsom applying this, let the Artist keep it in the Hollow of his Right-Hand; let him begin to lay it on the bottom of the Stump, and, raising his Hand on a sudden, clap it on the End, and bid a Servant to keep it on: This must be thick enough, and should rise something on the Edges, and be hollowed in the Middle, for the better keeping on the Powders.

9. A dry'd Hog's Bladder, to be apply'd over the former: This Bladder must be cut four ways, like a Cross of *Malta*: The four Ends must be raised on the Arm, to encompass it handsomely. This Bladder may be armed with Styptick Powders, especially if no Ligature be made.

10. A great Emplaster of *Minium*, cut in the same Form, and laid over the Bladder: It must be pretty large, to cover the Arm far enough. For the applying this methodically, take one Tail with both Hands, and put it under the Arm, which is cut off, and lay it round; then take up the upper Tail, lay it over the Arm, and dispose it so that the undivided Part may be precisely on the Stump: Take the two Tails on the Side of the Arm, and, one after another, raise them, and encompass the Arm with them.

11. A great Compress of Cloth doubled, and cut in form of a Cross of *Malta*, for covering the Emplaster: This is apply'd in the same manner as the Emplaster: It must be large enough to cover all, and must be kept on by a Servant who holds the Part.

12. Three Longitudinal Compresses, an Inch and a half broad, and about a Foot long, in four Doubles: You must apply two in such manner, that they may cross on the Middle, or Center of the Stump, and must raise them all along the Arm, that is, above, below, and laterally: Apply the third about the two first, circularly, so that its two Ends may cross each other, and rise a little

File obliquely up, and keep all the Dressings on with the following Roller.

13. A Roller of four Ells long, and two Inches broad, for making the Bandage called the *Cassine*: For the methodical applying this, make three Rounds about the Edge of the Part which is cut off, then bring up the Roller with Edgings above the Elbow, and make several Rounds about the Arm; bring it down all along the Arm, to pass over the middle of the Part which is cut off, then ascend the whole length, and pass quite over the Elbow, and being arrived there, make a Round about the Arm, to engage and keep the two Casts of the Roller, which you have brought down and up; then bring down the Roller again, to pass over the Wound; re-ascend above the Elbow, and make a Round, and pass over the Stump, till it be quite cover'd; bring up the Roller with small Edgings, to keep fast all the former Turns made round the Arm, and then all with Rounds about the Elbow, then rest the Arm on a Pillow.

There are some Practitioners who will not load the Part with several Compresses, nor apply Hogs Bladders on Amputations, because these Things, say they, occasion Obstructions and Inflammations, and if these Ligatures should fail, the Patient might lose a great deal of Blood, which might be retained in the Bladders, without being perceived.

When you take off the Dressings, take heed not to use Violence, for fear of tearing off the Ligatures.

After the Suppuration, you must keep the Compresses close on the Stump, to hinder the Generation of Fungous Flesh.

Read together with this, the Chapter of the Amputation of the Thigh, where you will find how the Turniket and Ligature are us'd.

The Dressing for an Amputation of the Arm.

This is like that of the Cubit; but whereas you keep fast the Roller by several Rounds above the Elbow, in the former, you must fasten it around the Body, for the Amputation of the Arm: In the first Dressing, your Business is to stop the Blood; for after you may stay it by Rounds about the upper end of the Arm only.

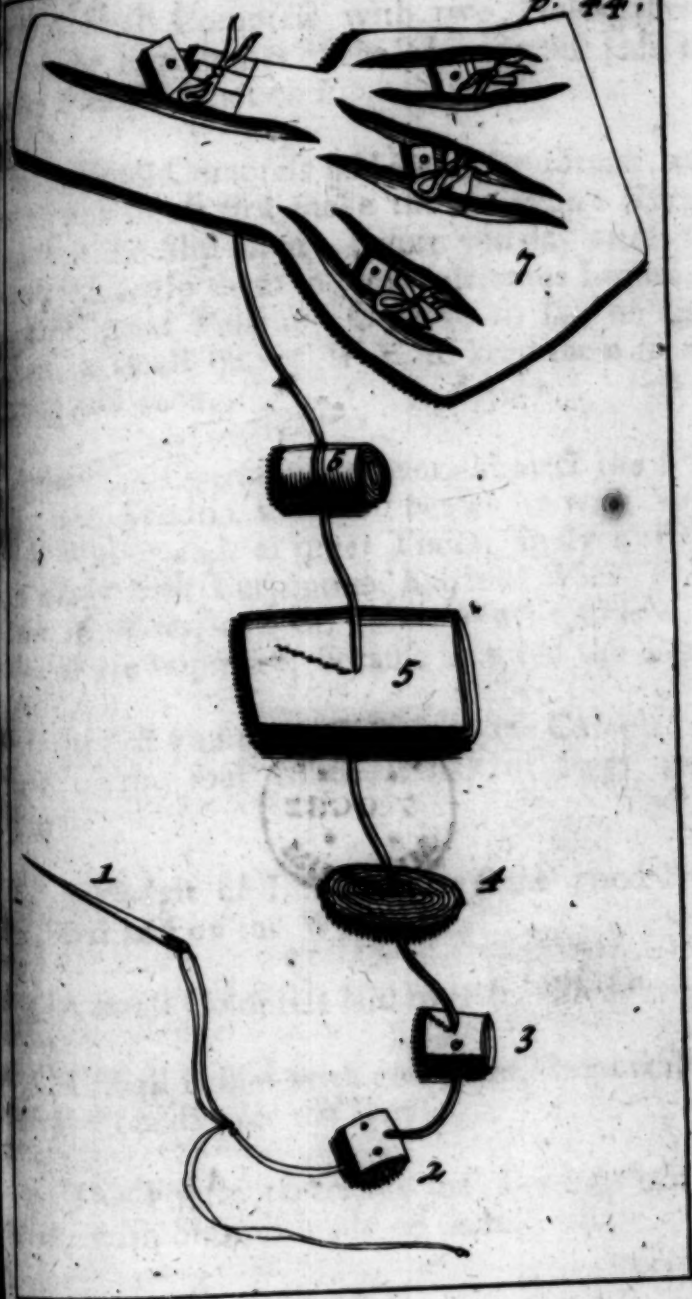
The Dressings for the Stitching of the Tendon.

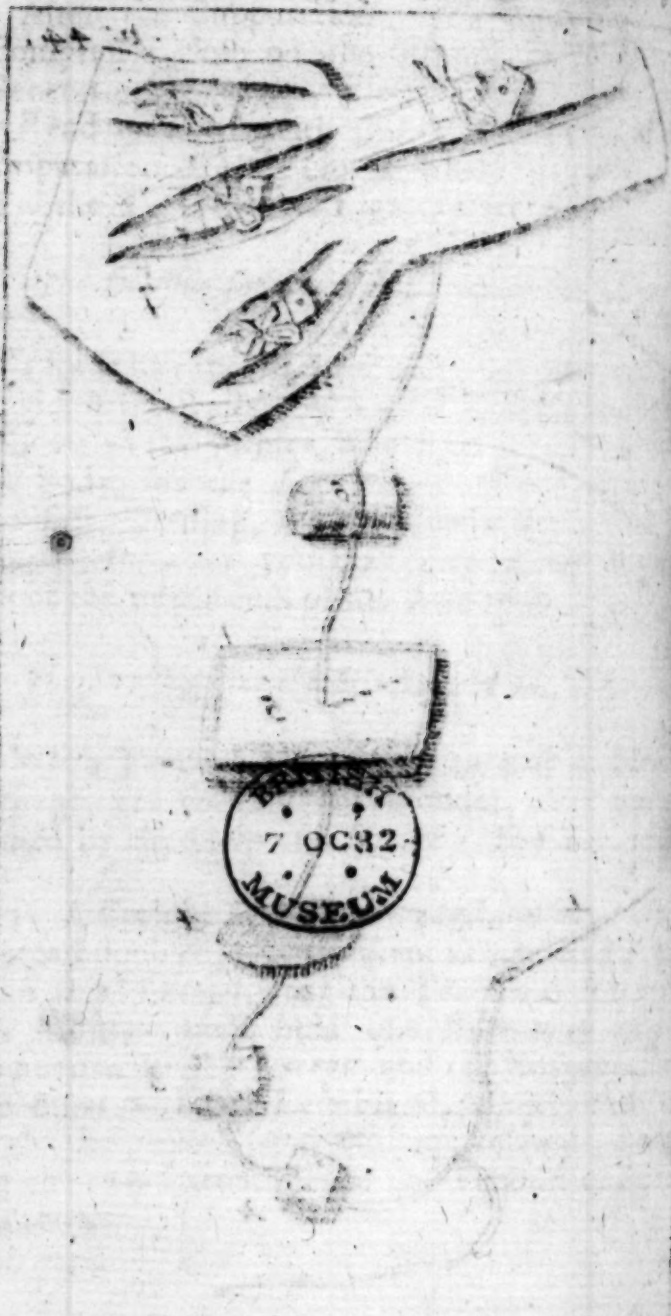
When Tendons big enough to pass a Needle through, are entirely cut asunder, they are reunited by the Help of a Suture, See Tab. 17.

1. A streight Needle threaded, with a Wax-Thread doubled, with a Knor at the End; it is with this Thread, that the Tendon is stitched: An Assistant must hold one Extremity of the Tendon with the *Forceps*, and the Surgeon hold the other with his Left-Hand, whilst, with his Right, he pierces from without inwards, bringing the two Extremities of the Tendon one over the other.

For the Stitching of y^e Tendon T: 17.

p: 44.





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2. A small Compress with two Holes, thro' which the Extremities of the Thread must pass, to make a simple Knot on it.

3. A small Compress laid over the former, on which you must first make the Surgeon's Knot, and then the Slip Knot: Before you lay on these Compresses, dip them in some spirituous Liquors, or some good Balsam. Observe to lay on the Knots, a small bit of Wax, to keep them from rotting too soon.

When the Operation is over, humect the first Day, the Tendon with Oil beaten up with Spirit of Wine; and, at other Times, apply a Balsam made with Turpentine, Spirit of Wine, Tincture of Aloes, and St. John's Wort: Oils and Greases are improper, because they rot the Tendons.

At the first you may successfully use Cataplasms made of the four Meals, Yolks of Eggs, and Honey.

4. A Pledgit of Lint, dip't in some good Balsam, and laid on the Wound.

5. A small Compress laid over the Pledgit.

6. A small Roller with one Head, for making several Rounds over the Dressings.

7. This Figure represents the Tendons of the Wrist, with Sutures made on them.

The Dressing for a Dislocation of the Wrist.

1. A Roller with one Head, six Ells long, and an Inch and a half broad : For the applying this, make with the End of the Roller, three Rounds about the Dislocation ; bring the Roller over the Root of the Thumb, and then between the Thumb and Fore-Finger ; bring it round the Thumb to make an X about the bottom of it ; descend over the Wrist with small Edgings, and with these cover the dislocated Part ; then lay your

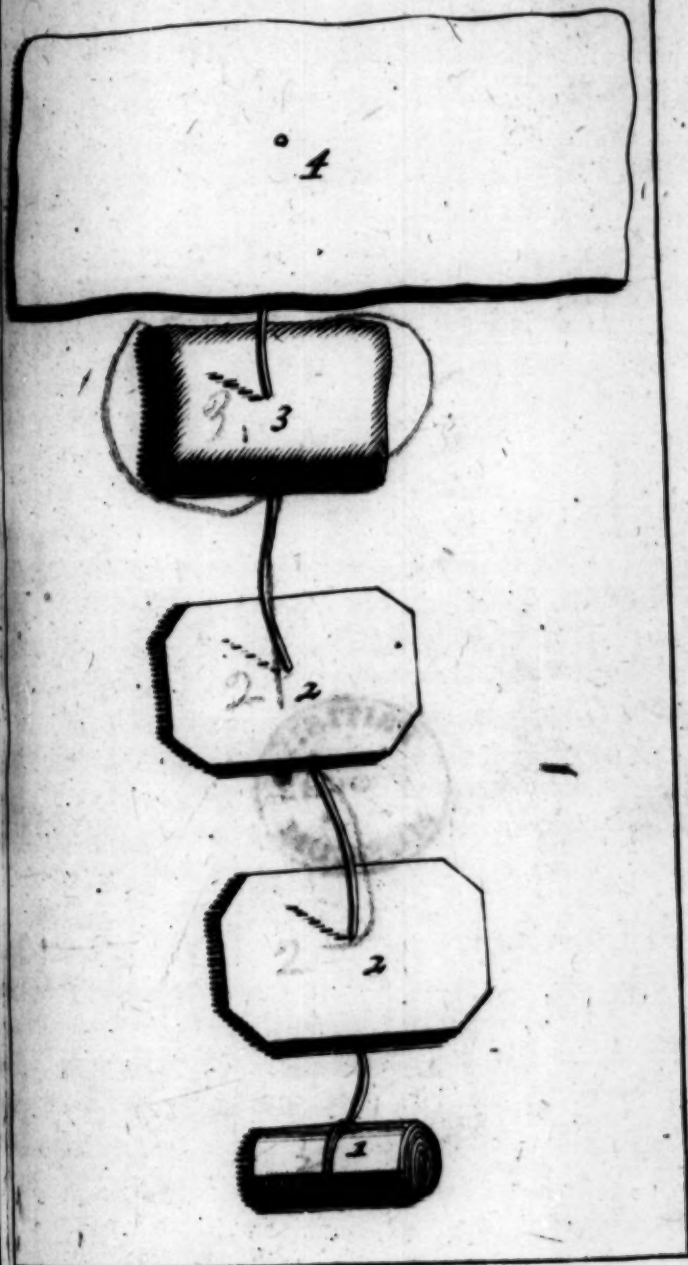
2. Past-boards on : These are to be laid on the Sides of the Wrist, being first dipt in Oxycrate, which you made use of to soak the Roller. These Past-boards must be big enough to encompass the Arm, without touching it ; they must be near six Inches long, and shaped round at the Ends.

Take up the remaining part of the Roller, and carry it so often round your Past-boards, till they are cover'd with the Edgings : Put into the Patient's Hand the Pellet of Cloth mark'd 3.

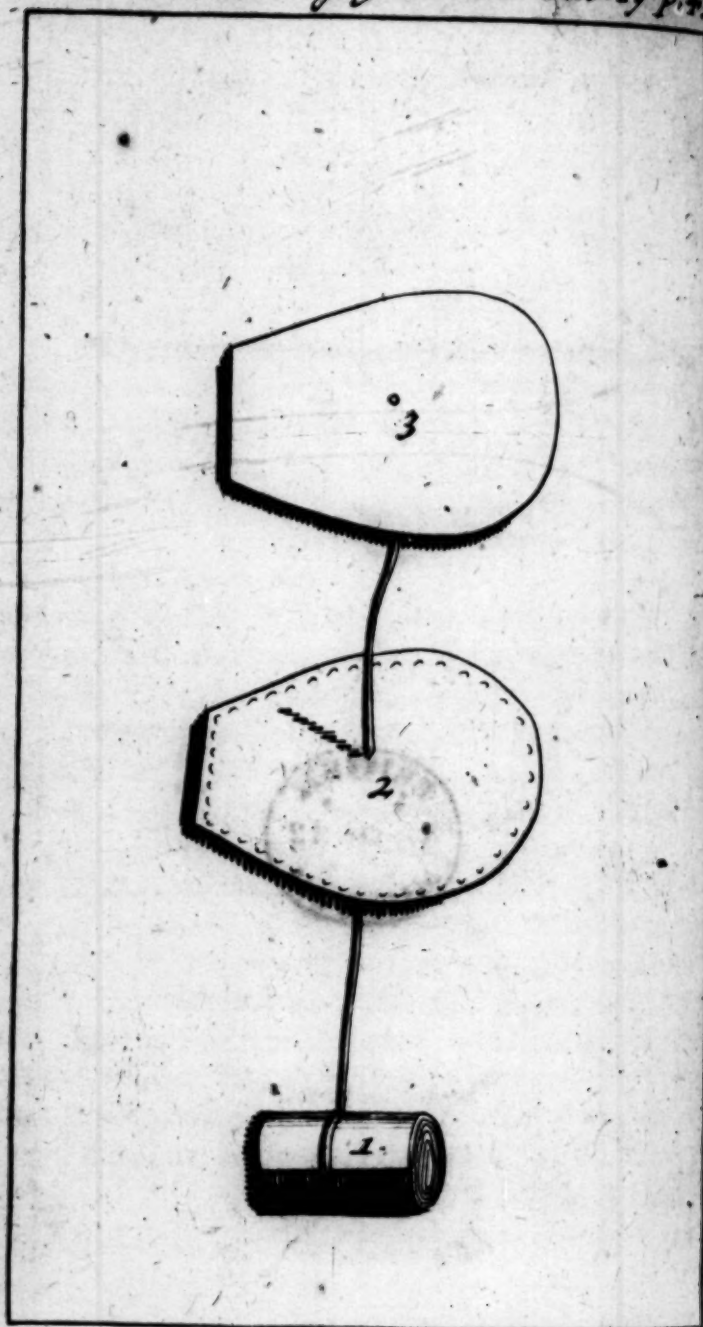
3. A small Pellet, or Ball of Cloth, for the Inside of the Patient's Hand, to keep his Fingers in a middle Posture : When you have placed it there, take again your Roller, bring it over the Ball to keep it there, ascend with Edgings the whole length of the Cubit, and fasten the Roller with several Rounds above the Elbow, without covering it.

In a Dislocation of the Wrist: Tab: 18

p: 26.



For a Fracture of y^e Wrst Tab: 19. p: 47.



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4. A soft Napkin to make a Scarf to hold the Patient's Arm. See how this is to be made in the Fracture of the Arm.

The Dressing for a Fracture in the Bones of the Wrist. See Tab. 19.

1. A Roller with one Head, six Ells long, and an Inch and a half broad : Make three Rounds about the Wrist, with the End of the Roller : Pass between the Thumb and Fore-Finger, to make an X on the bottom of the Thumb : Make several Edgings on the Wrist to cover it.

2. A Linnen Compress in several Doubles, having the Figure of the upper Side of the Hand ; This must be large enough to cover the Wrist : You must apply this Compress on the Wrist, the narrow End being towards the Arm ; It must be dip't in Oxycrate.

4. A Past-board of like Figure, with a Compress, to be laid over it.

Take up the remaining Part of the Roller, and cover the Compress and Past-board with Edgings : Ascend with Edgings the length of the Arm ; fasten your Roller above the Elbow, with Rounds, and pin it : When this is done, suspend the Arm in a Scarf, as is above described, in the Fracture of the *Humerus*.

The Dressing for a Fracture of the Metacarpus.
See Tab, 20.

1. A Roller with one Head, and an Inch and a half broad : Make two Rounds about the Wrist, to fasten the Bandage : Pass over the *Metacarpus*, between the Thumb and Fore-Finger, and come and make an X on the Hand : Make Edgings and X's on the Hand, till it be quite cover'd ; then cause it to be held, to lay on the Compress

2. A Compress of Linnen Rags, in several Doubles, having the Figure of the upper Part of the Hand : Apply this Compress over the Turns of the Roller : It ought to cover the *Metacarpus*.

3. A Past-board of the same Figure as the Compress, laid over it.

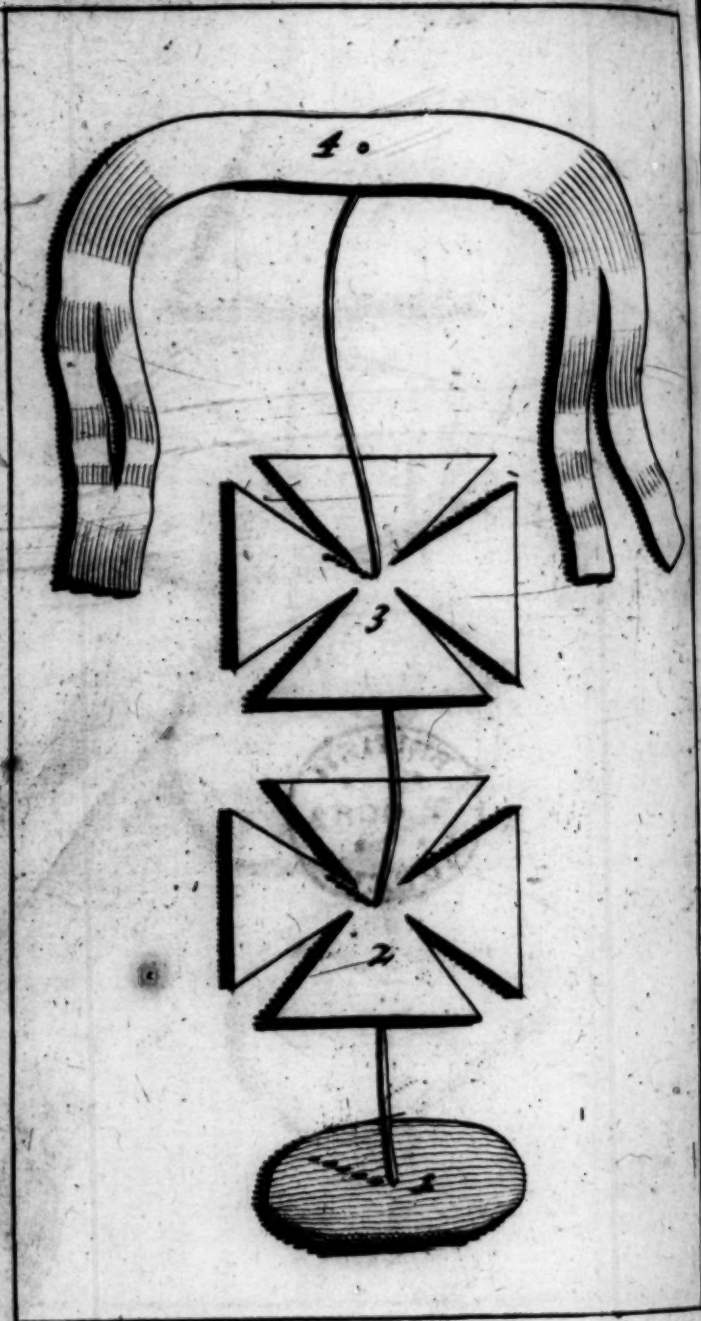
4. A Compress of the same Figure with the preceding, for the in-side of the Hand.

5. Another to be laid on the in-side of the Hand, over the former.

Take up again the remaining Part of your Roller : Cover all this Dressing with Edgings, which you must make both over, and in the Hand ; Ascend with Edgings all up the Arm, and fasten the Roller by several Rounds above the Elbow, without covering it, and put the Arm into a Scarf, as before.

From the collection of the British Museum





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The Dressing for a Whitlow.

The Whitlow is a Swelling which arises at the Extremity of the Finger, whose Matter lies between the *Periostium* and the Bone. When this happens, the Patient endures great Pain, and an excessive Heat; he feels a great Pulsation, a mighty Tension, and a burning Fever: Sometimes the Matter is only in the Tendons, and here the Accidents are the same as before.

Sometimes the Matter is in the Flesh, and then the Accidents are less painful.

The Operation consists in opening the Swelling, to let out the Pus; when this is done, make the Dressings. See *Tab. 21.*

1. A Pledgit with Digestives, to be apply'd neatly round the Whitlow.

2. An Emplaster cut in the Form of a Cross of *Malta*; the Middle of this is to be laid to the End of the Finger, crossing the four Tails, and laying one over the other.

3. A Compress of Linnen to be laid over the former.

4. A small Fillet about a Quarter of an Ell long, and about two Thirds of an Inch in breadth, with a Hole slit length-ways at one End, and cut the Space of three Fingers breadth the other way: Pass the two Tails or Ends thro' the Hole, and draw them till the Fillet be close to the Finger; Cover the Dressings by small Edgings, and make a Knot with the two Tails. *The*

The Dressing for a Dislocation of the first Set of Bones of the Fingers, from the Metacarpus.

Admit the first Bone of the Thumb to be dislocated ; Take a narrow Roller with one Head, about an Ell long, and two Thirds of an Inch broad : Make first of all two Rounds about the Wrist, to stay the rest, and then ascend over the Articulation of the Thumb, turn there to make an X on the Joint, descend with the Roller over the Wrist, to bring it up over the first Cast or Turn, and so make a second X on the Joint, rising never so little with a very small Edging. You must continue these X's, and the small Edgings on the Joint, till your Roller be almost spent, and then, with the remaining Part, make Rounds about the Wrist to fasten the whole. This small Bandage is term'd *Spica*, which is made in the same manner for all of the first Range of the Bones of the Fingers : The Scarf for the Arm was shewn before.

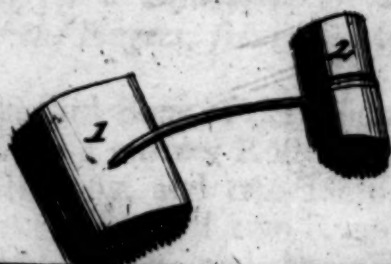
If the other Range of the Bones of the Fingers were dislocated, suppose, for Instance, the last or upper Bone of the Middle-Finger ; Make two Rounds about the Wrist ; bring the Roller over the Hand all along quite to the Bone, which is luxated, making the Patient to keep his Hand open : Turn the Roller circularly round the luxated Part ; descend insensibly the whole length of the Finger, by very small Edgings, and end all with several Rounds about the Wrist ; and thus you will have a firm and secure Bandage, and the Patient cannot bend his Finger ; but these Dislocations seldom happen, and I do not know whe-

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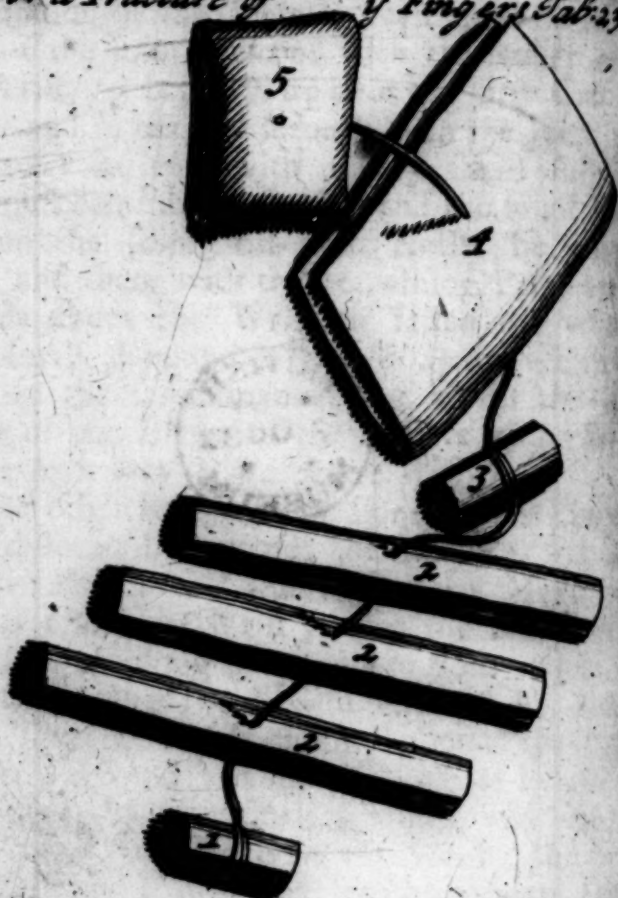


For Bleeding in the SALVATELLA

Tab: 22. P: 52



For a Fracture of 5 Fingers Tab: 23



Bandages and Dressings. 51

Whether they are possible: This Dressing only consisting in a Roller, it was not necessary to make a Figure of it.

The Dressing for Bleeding in the Vein Salvatella.

The *Salvatella* is a small Vein between the Little-Finger, and the next to it.

1. A small square Compress to be apply'd over the Orifice.

2. A Roller with one Head, about an Ell and half long, and of the breadth of the Points of two Fingers: To apply this, make two Rounds about the Wrist; bring the Roller on the Back of the Hand, and pass over the Compress; then bring it between the Ring and the Little Finger, make an X on the Compress; Pass down towards the Wrist, that so you may re-ascend over the Hand, and pass over the Compress, making a small Edging with the first Part of the Roller: Pass between the Ring and Little Finger, to make a second X on the Compress: Continue thus till your Roller be near spent, and then fasten it about the Wrist. This Bandage is neat, but very useless, for Bleeding here is laid aside, and an Emplaster of Mastick laid on the Compress, is sufficient to keep it on the Part.

The Dressing for a Fracture of the Fingers.

In case the first Bone of the Great Finger were broke, the Dressing is as follows. See Tab. 23.

1. A

1. A Roller of half an Ell long, and two Thirds of an Inch broad ; with this make two or three Rounds, strait enough over the Fracture, and then ascend and descend with small Edgings, till the Finger, being wholly cover'd, cannot stir.

2. Three small Longitudinal Compresses, very narrow, as long as the Finger, and to be laid length-ways round it.

3. A small Roller, about two Thirds of an Inch broad, and an Ell long ; with this make two Rounds, over the Longitudinal Compresses, on the Place of the Fracture ; next cover them all along with small Edgings, and then fasten them by Rounds about the Wrist.

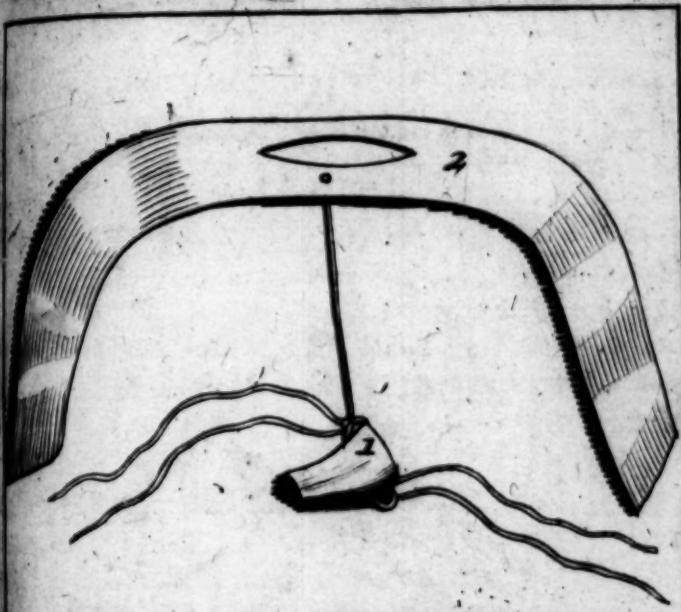
4. A great Napkin for making the Scarf, of which before.

5. In all Cases where the Hand is concerned, you must put a soft Pellet, marked 4, to keep it open, and keep this Pellet on it with a Roller.

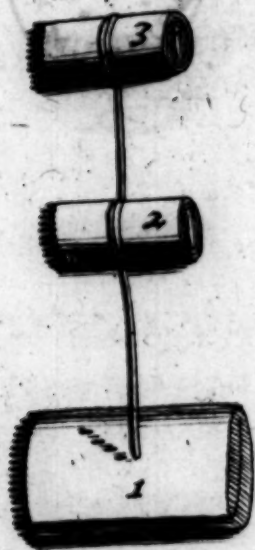
The Dressing for Bronchoromy.

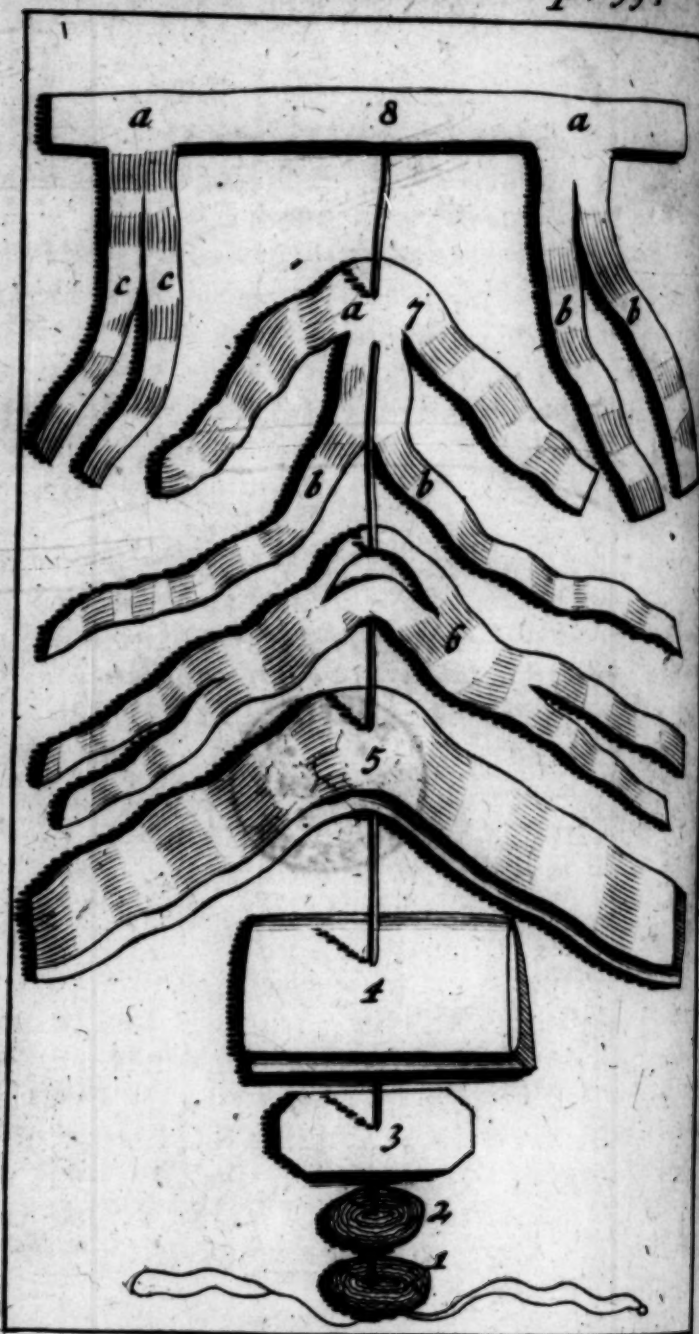
1. *Bronchotomy* is an Aperture between the third and fourth Ring of the *Aspera Arteria*, to give way for the Patient's breathing, when he is suffocated by an Inflammation of the Muscles of the *Larynx* : After the Incision is made, apply the following Dressings. See Tab. 24.

For Bronchotomy Tab: 24. p: 52.



For Bleeding in y^e Jugulars Tab: 25.





1. A small *Cannula*, or Pipe of Silver, very short, flat, and crook'd at the End, to prevent exciting a Cough, when it touches the other Side of the *Aspera Arteria*.

This Pipe is to be introduced between two Rings of the *Aspera Arteria*, and fasten'd about the Neck with two small Ribbons or Tapes, the two Rings on the Side: The Pipe is to be left in the Wound till the Accidents are over. After it is taken out, bring together the Lips of the Wound, and make the uniting Bandage in the following manner.

Some put a little Tow into the Pipe, to modify the Air, as they say; but, besides that this is useless, it seems dangerous, because it may be drawn into the *Aspera Arteria*; and therefore, if you put any, it must be ty'd with a Thread.

As soon as the Pipe is introduced, you must lay on a perforated Emplaster, and a Compress likewise perforated on the Pipe, and keep all on with a little Filler perforated, which must be left on till the Accidents are over; and when this is done, dress the Wound.

2. A Filler about an Inch and a half broad, with a Slit in the Middle; bring the End of the Filler thro' the Hole: Apply the whole on the Wound, and straiten it, by drawing the Filler at both Ends, taking care to bring the Lips of the Wound together; then fasten the two Ends of the Filler one over another: If the Wound require farther Care, you must use proper and convenient Remedies.

The Dressing for Bleeding in the Jugulars.

Bleeding in the Throat is chiefly used in great and stubborn Inflammations of the Eyes, and in Yoporoſe Diſeaſes : To do this, make a Ligature around the Patient's Neck with a Handkerchief, which he may hold himſelf, if he be in a Condition ; and if he be not, ſome other muſt do it for him, taking care not to ſtreighten it too much : When the Bleeding is over, make the following Dressing. See *Tab. 25.*

1. A ſmall Compreſs in ſeveral Doubles, to be laid on the Oriſice, having firſt wiped it with the Compreſs, which is to be apply'd to the Side that is not bloody.

2. A Filler of two Inches broad, and an Ell long, the middle of which you muſt lay on the top of the Patient's Head, letting the two Ends hang on the Sides of the Neck, that ſo you may engage them with the following Roller.

3. A Roller with one Head, two Inches broad, and an Ell long ; with this make ſeveral Rounds over the Compreſs, and the two Ends of the Filler which you left hanging down ; and when theſe two Ends are engaged, raiſe them over the Head, to hinder the Roller, which went round the Neck, from falling down.

Instead of all this Dressing, you may make uſe of a ſticking Emplaſter, which will be ſufficient to keep on the Compreſs.

The Dressing for an Amputation or Cancer in the Breast.

A Cancer is a round Schirrous Swelling, which is hard, unequal, and livid, and chiefly arises in the Breasts of Women: Read the excellent Book which Mr. Gendron has lately published, concerning this terrible Disease. There you will find a new Explanation of the Production of Cancers, with their Cure.

The Operation here consists in removing the whole Swelling, and after make the following Dressing.

1. A good double Thread, for tying the Arteries.
2. Large Pledgits armed with Restringent Powders, to cover the Wound after the Swelling is removed.
3. A great *Diapalma* Emplaster, to cover the Pledgits, and the whole Wound.
4. A large square Linnen Compress in several Doubles, to be laid over the Emplaster.
5. A large Napkin folded in three Parts, with which the contentive Bandage is made: To apply it neatly, you must roll it at both Ends, and then lay the Middle on the Tumour; you must turn the two Balls behind, then bring them before, and fasten them with Pins where they end.

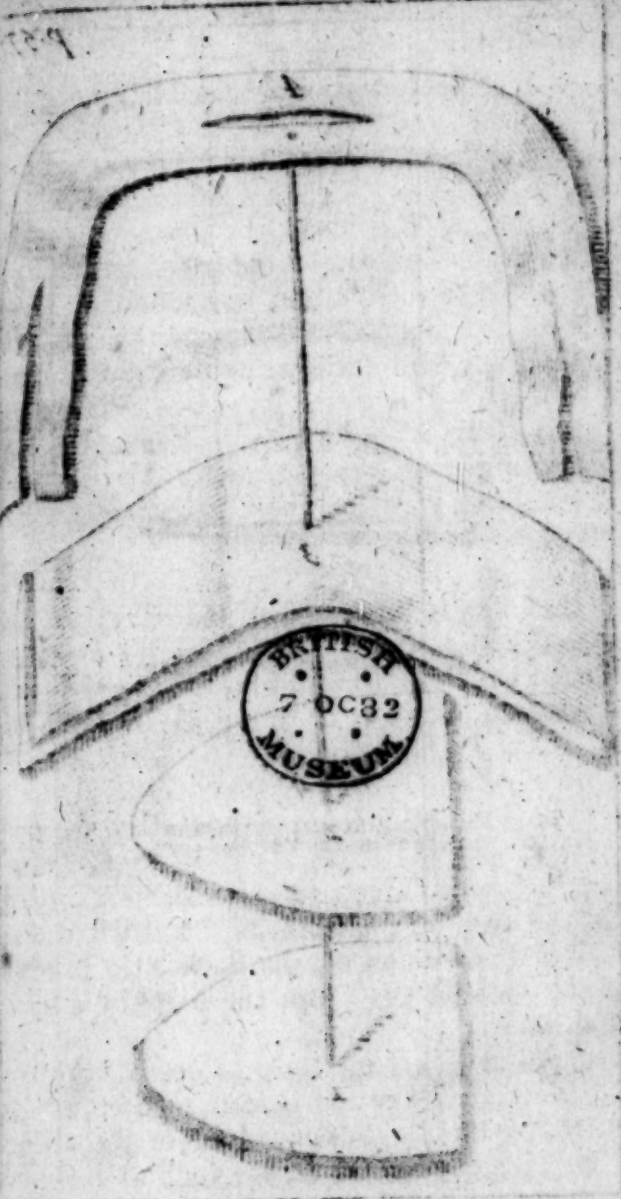
6. A Scapulary to keep up the Napkin, which is rolled round the Breast; this is a Piece of Cloth about six or seven Inches broad, and three quarters of an Ell long, with a Cleft in the Middle for the putting the Head through; one of its Ends must go before, and the other behind, and so be fasten'd to the Napkin, to keep it up: Some cut the End of the Napkin, as in Slings, and, crossing the Tails, pin them at some distance from one another. There are some too, who engage the Ends of the Scapulary under the Napkin, and then turning them up, pin them: You may use your Pleasure, it is no great Matter which you do, if your Bandage do not fall.

7. The single Bandage of *Heliodorus* for one Breast, if you do not use the Napkin; bring the Girth *A* round the Body, and fasten it behind; cross the two Straps *B B* on the Breast; pass behind, and there fasten them to the Girth *A*.

8. The double Bandage of *Heliodorus* for both Breasts. Bring the Girth *A* round the Body under the Arm-pits: Cross the two Straps *B* on the Breast, to keep on the Remedies, and fasten these to the Girth *A* behind on the Back; do as much with the two Straps. But the Napkin is better than all this.

Observe never to use sharp or corrosive Medicines, for these make the Disease incurable: No more may you use Suppuratives or Repellents. The only proper Remedies, are such as are mild, temperate, and cooling, as Night-shade, Plantain, or Strawberry Waters, *Sal Saturni*, Cream, and

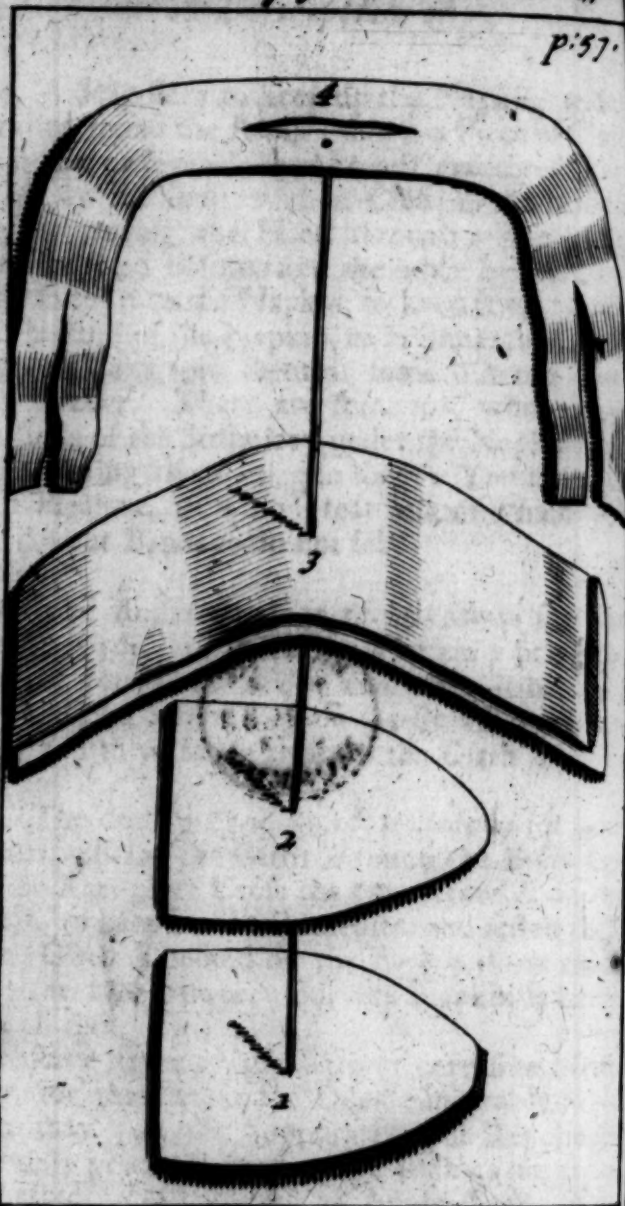
For reference of the Secretary of the Admiralty



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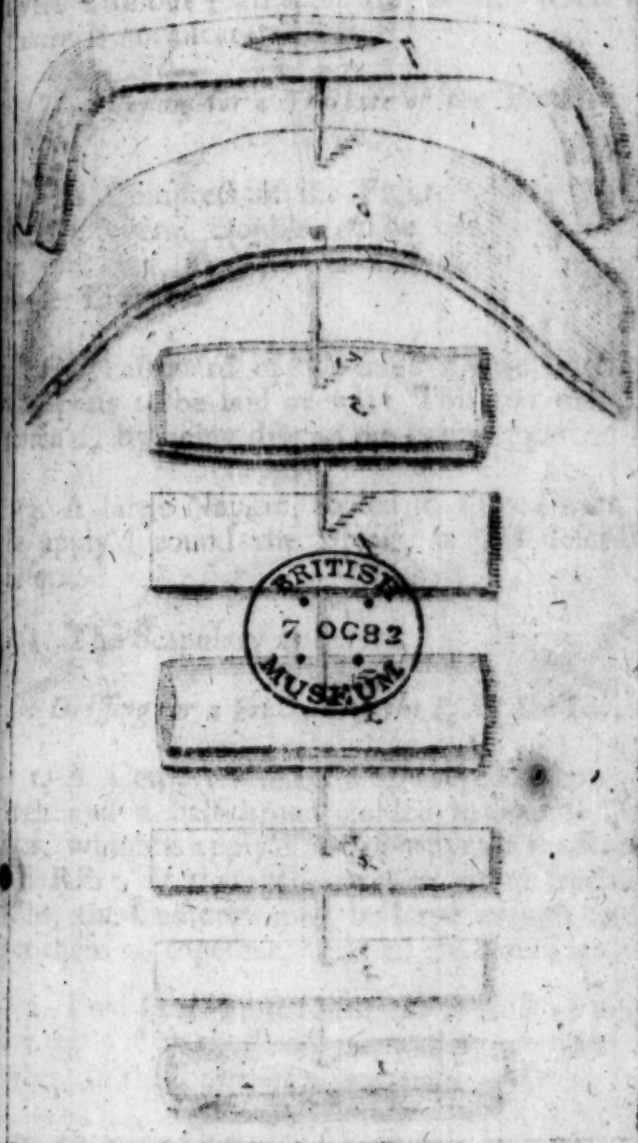
For a Fracture of $\frac{y}{y}$ Sternum Tab. 27.

p. 57.



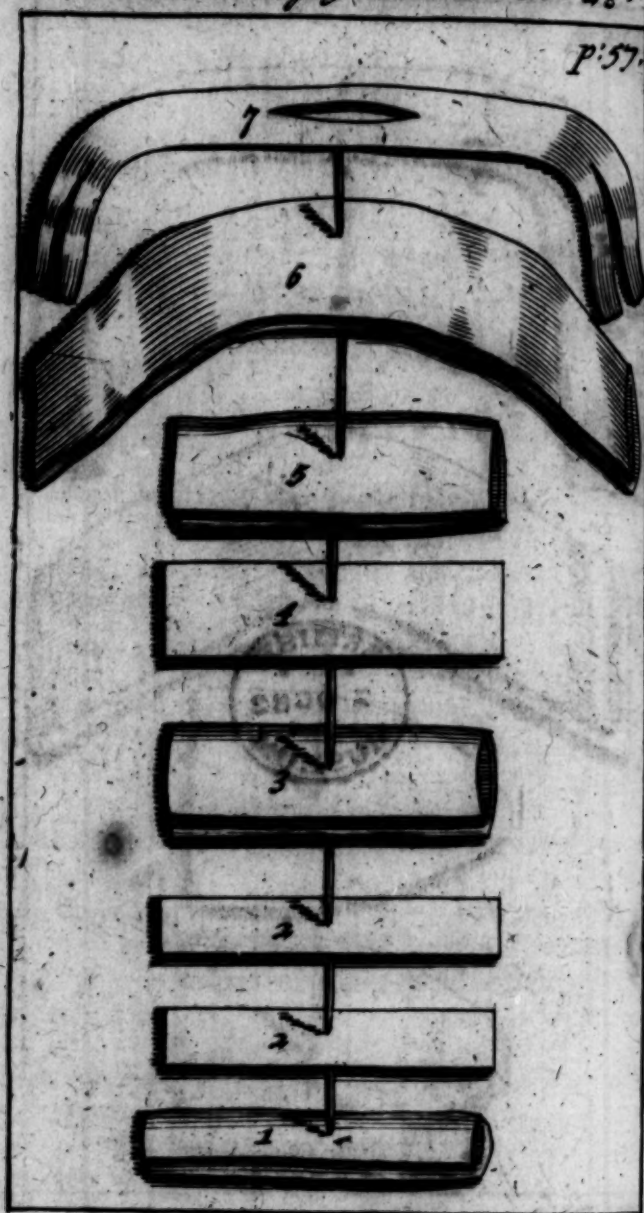
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For a Fracture of y^e Ribs Tab: 28.

P: 57.



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and whatever else may soften and appease this severe Tumour; all these are of use, when the Cancer is not ulcerated.

The Dressing for a Fracture of the Sternum.

See Tab. 27.

1. A Compress of the Figure of the Breast-bone in several Doubles; to be laid immediately on the Part, having been first steep'd in some proper Liquors.

2. A Pastboard of the same Figure with the Compress to be laid over it: This too must be soften'd, by being dipt in the same Liquor.

3. A large Napkin, folded in three Pleats, to be apply'd round the Breast, as was described before.

4. The Scapulary as before.

The Dressing for a Fracture of the Ribs. See Tab. 28.

1. A Compress something longish, about an Inch and a half broad, folded in several Doubles, which is apply'd length-ways on the fractured Rib: If there are two or more fractured Ribs, the Compress must be large enough to cover them all together, with all the Dressings.

2. Two small Pastboards, the Middle of which are apply'd on the Fracture, passing one over the other, in the Form of a St. Andrew's Cross.

3. A large Compress in several Doubles, to cover the whole Dressings.

4. A

4. A Past-board apply'd on the Compress, to keep the Dressings on the Part.

5. Another Compress in several Doubles, to be laid over the Past-board.

6. A great Napkin folded in three Leaves, which is rolled about the Breast, to keep the Dressings, as was shewn before in treating of the Cancer.

7. The Scapulary to keep up the Napkin as before.

The Dressing when the Spinal Processes of the Vertebrae are fractur'd. See Tab. 29.

1. A small longish Compress in several Doubles, about an Inch broad, which is to be laid along the *Vertebrae*, on the Side of the Spinal Process, which is fractured, to keep it right after it is reduced.

2. A Past-board of the same Figure and Length, as the Compress, to be apply'd lengthways over all.

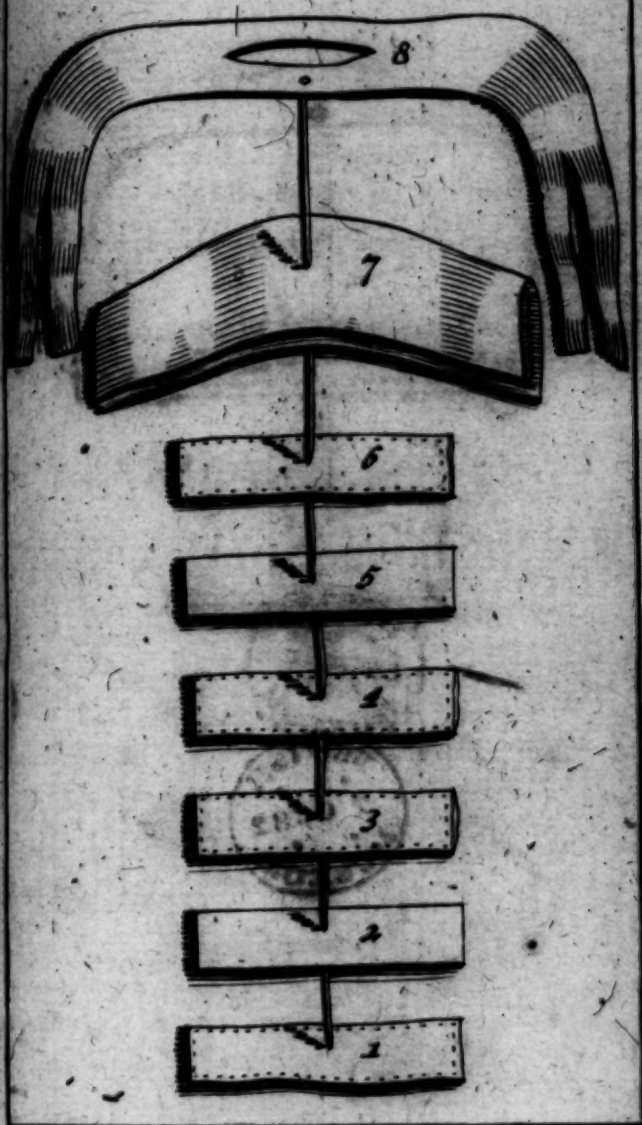
3. A small longish Compress in several Doubles, of the same Bigness and Figure as the first, which is to be laid over the Past-board.

4. A small longish Compress in several Doubles, to lay on the other Side of the fractured Spine, to keep it up.

5. A

For the Fracture of a Spinal Process

Tab: 29. p: 58.



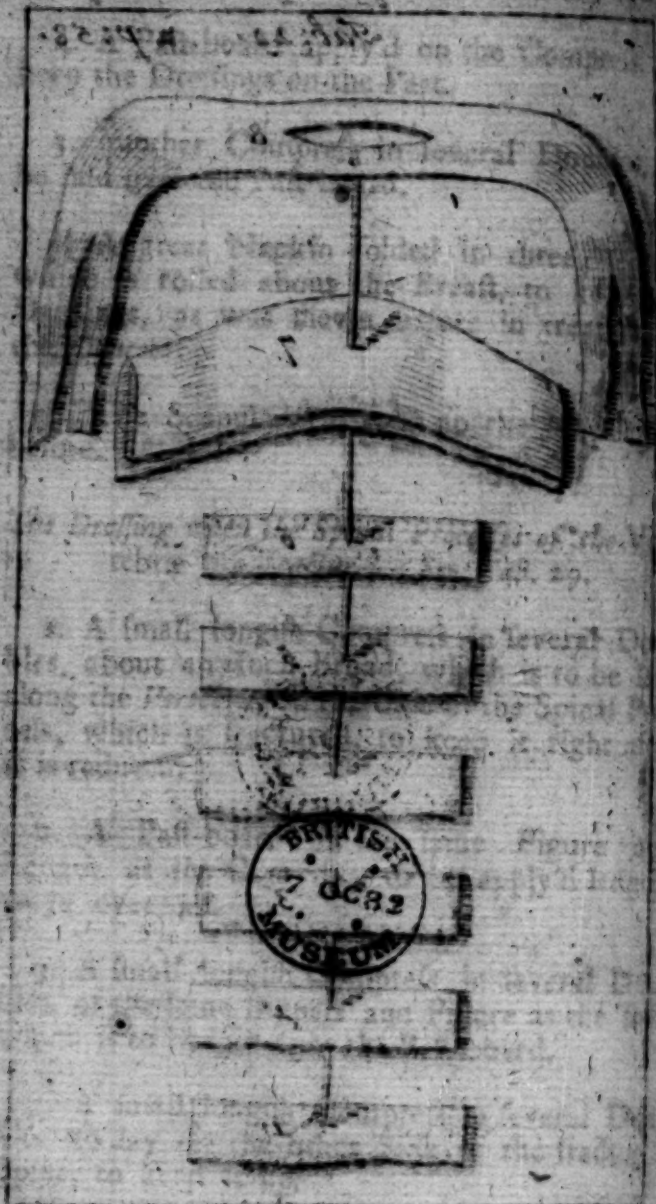
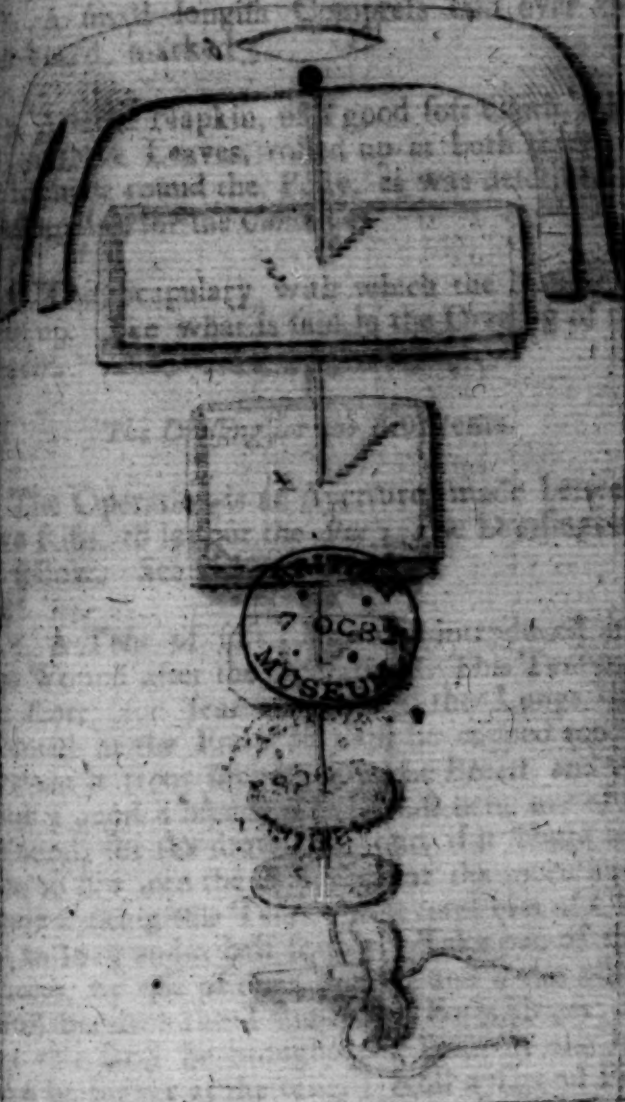


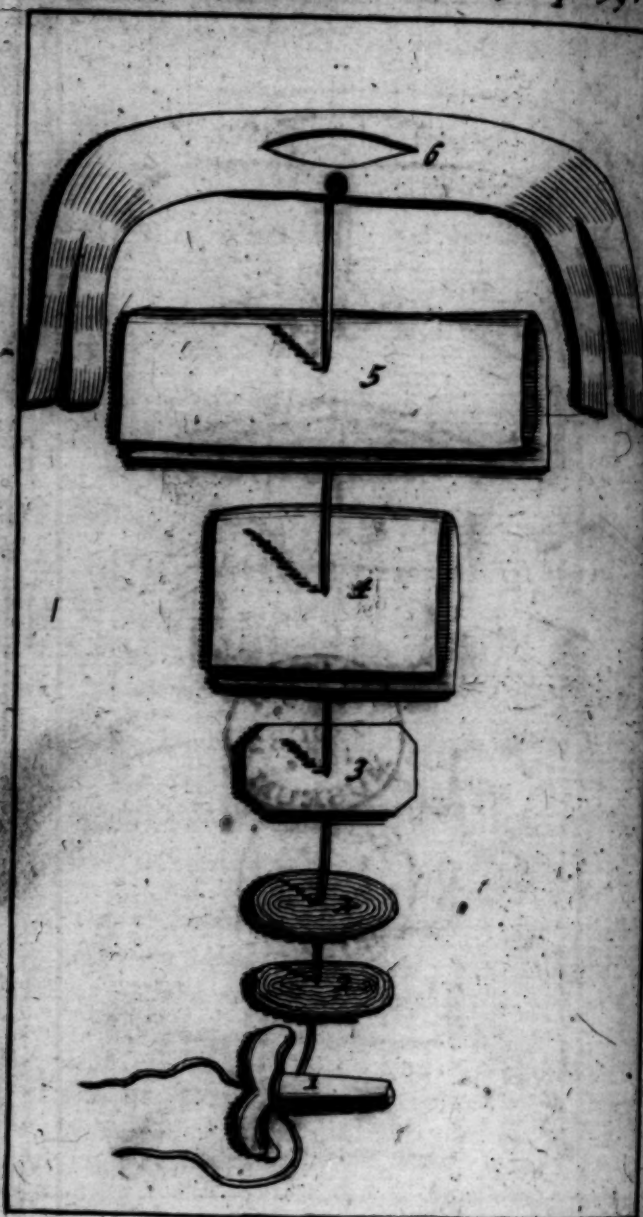
PLATE I. THE ANATOMY OF THE HUMAN BODY.

A. The Human Body, as it is found in the State of Nature.

The Human Body, as it is found in the State of Nature, is represented in the following Plate.



For the EMPYEMA Tab: 30. p: 59.



5. A Past-board laid over the Compress. 4.
6. A small longish Compress laid over the Past-board, marked 5.
7. A large Napkin, of a good soft Cloth, folded in three Leaves, rolled up at both Ends, to be brought round the Body, as was described in the Dressing for the Cancer.
8. The Scapulary with which the Napkin is kept up. See what is said in the Dressing of the Cancer.

The Dressing for the Empyema.

The Operation is an Aperture, made between two Ribs, to let out the Pus : The Dressings are as follow. See *Tab. 30.*

1. A Tent of soft Lint to be introduced into the Wound after the Operation. This Tent must be short, for fear of hurting the Lungs, and blunted at the End : It must be capped too, to prevent it from slipping into the Breast, and ty'd with a good Thread, which must hang out of the Wound, for the drawing it out, if it should happen to slip into the Breast. For the more handsome making this Tent, cut several bits of Cloth of an Inch and a half square : Take one of these Pieces, by one of their Angles, and make a little Roll between the Thumb and Fore-Finger, and let this Roll be brought to a Point at one End, and be bigger at the other : Roll a second Piece over

ver this, as you did the first, and then a third, and so on till your Tent be big enough, and then tie it; cut the big End with the Scissars, and after cut it length-ways, for the Space of an Inch; separate to the Right and the Left, what you have cut, and form a Head, and then shape it round with your Scissors.

Take care to blunt your Tent at the small End, and to soften it by nibbing and managing it with your Fingers.

Some Practitioners prefer a large thick Tent made of Lint, and thrust this, armed with a Digestive, into the Wound.

2. Pledgits to lay on the Wound.

3. An Emplaster to cover these Pledgits.

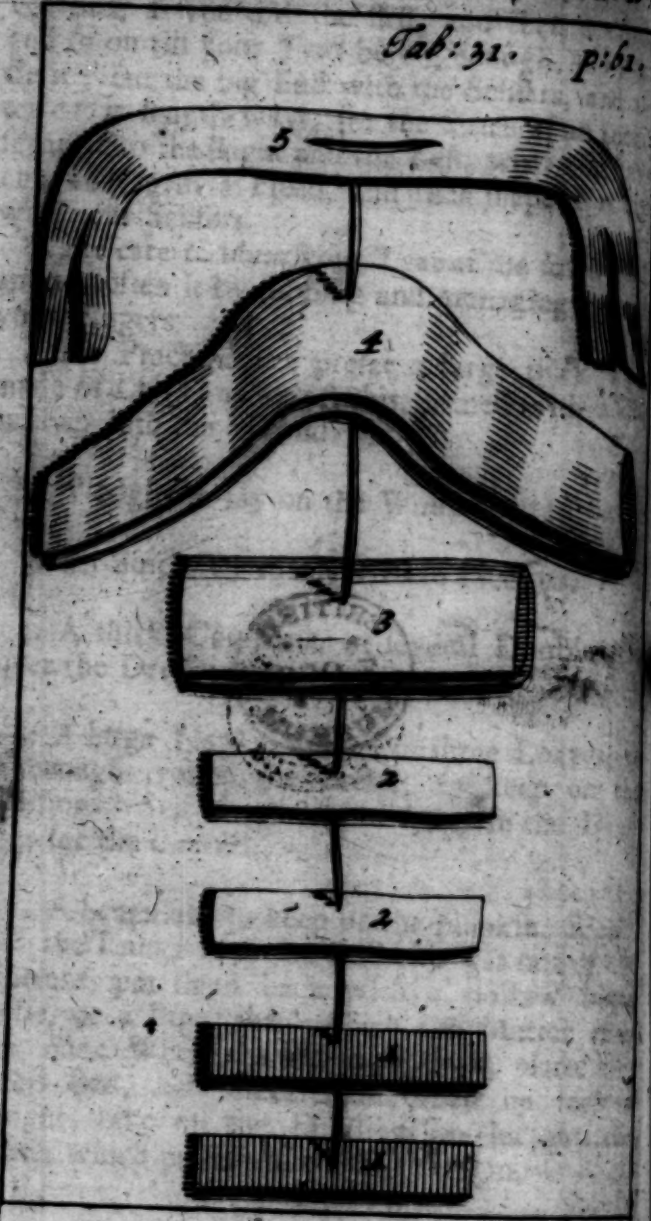
4. A thick Compress, in several Doubles, to cover the Dressings.

5. A large Napkin folded in three Leaves, to be brought round the Breast, to keep on the Dressings: See what is said on this in the Dressings for the Cancer.

7. A Scapulary to keep up the Napkin. See it. If the Lungs make an Effort to get out of the Aperture, put them back with a hollow blunt Probe, or a Pipe, thro' which the Matter may flow out: When the Patient is drest, place him in his Bed, half erect, and when he feels a Weight, take off the Dressing, to let out the Matter which presses on the Diaphragm.

For y^e VERTEBRÆ luxated, outward.

Tab: 31. p: 61.



2:61.



For a PARACENTHESIS Tab. 32.

P. 61.



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The Dressing for a Dislocation of the Vertebrae.

See Tab. 31.

1. Two small Plates of Lead, to be placed length-ways on the Body of the *Vertebra*, which is luxated one on each Side the Spinal Process after the Reduction.

2. Two long Compresses of Linnen-Rags in several Doubles, to be laid on each Side the Spinal Process, over the Plates of Lead.

3. A large Compress laid over all: This must have several Doubles.

4. A large Napkin folded in three Leaves, to embrace the Breast; of which before: This must be pretty strait.

5. The Scapulary as before.

The Dressing for the Paracentesis. See Tab. 32.

The *Paracentesis* is an Aperture in the *Abdomen* of Hydropical People, made with the *Lancet*, or *Trocar*: The Dressings are these.

1. A large square Compress in eight Doubles to be apply'd on the Puncture, made with the *Trocar*, to hinder the Waters from flowing out; for however the Aperture be very small, the Waters will transude thro' it, and so foul the Bed without this Caution.

When you have made the Puncture with the *Lancet*, and would draw the Waters out at several Times, leave the Pipe in the Wound, or stop it with a Tent, and lay a Compress over it.

2. A large Napkin folded in three Leaves to be rolled round the Belly, to keep up the Dressings. As before.

3. The Scapulary. See the Use before.

Dressings which may serve for all Accidents on the Yard. See Tab. 33.

1. A Pledgit to be laid on the Wounds, when any Incision is made, as in the *Phymosis*, *Paraphimosis*, &c.

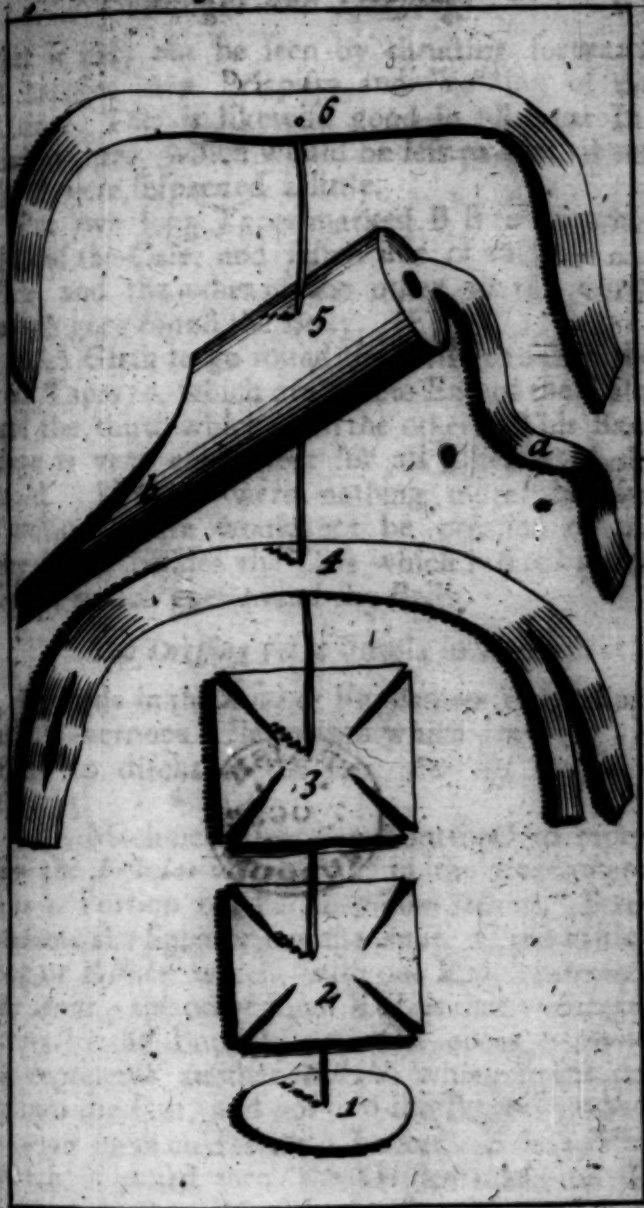
2. An Emplaster cut in the Form of a Cross of *Malta*, the Middle of which is to be laid on the End of the Yard, that so the Yard may be encompass'd with its four Tails.

3. A Compress of a fine and supple Rag, cut in the Form of a Cross of *Malta*, to be laid over the Emplaster.

4. A narrow Roller, or Filler, of half an Ell long, and less than the breadth of a Finger, with a Hole at one End, and cut lengthways at the other, for the breadth of three Fingers. Put the two Tails thro' the Hole at the opposite End of the Roller, and draw them to straiten the End of the Yard. Rise with small Edgings to the upper End of the Yard, and then make a Knot with the two Tails or Ends of the Filler to fasten it.

5. A little Bag, or Linnen Case, to keep the Yard in, with all its Dressings. It must be perforated at the End, to make Water thro' without taking off the Dressings. Fasten the Filler, (which must be strait and long enough) to a Girth which goes round the Body, to draw the Yard a little aside, when there is an Erection,
that

For the yard Tab: 33. p. 62.





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that it may not be seen by thrusting forward, as happens in a Priapism and Scalding of the Urine. This is likewise good in all great Inflammations, which would be less painful, if the Yard were suspended a little.

Put two long Tapes marked B B to the other End of the Case, and fasten one of these on one Side, and the other on the other, to the Girth which goes round the Belly.

6. A Girth to go round the Belly to fasten the two Tapes to, which are at one End of the Case, and the third which is at the other. This Bandage is very convenient for all Diseases of the Yard. If there were nothing more than an Erection, there would not be occasion to use any thing besides the Case which is fixed to the Girth, which goes round the Belly.

The Dressing for a Fistula in Ano.

A Fistula in the *Anus*, or Fundament, is a Callous and Cavernous Ulcer, into which Incisions are made to discharge the Pus. See the Dressings, Tab. 34.

1. A Machine of Leather, contrived to represent the *Fistulas* which arise in the Fundament. A is a Portion of the *Intestinum rectum*. B represents the Sphincter of the *Anus*. C the callous Bag or *Fistula*, which, with one End, opens into the *Anus*; the other small End, is that which answers in the Buttock, where it opens likewise. D represents another *Fistula*, which opens only into the Gur, and not into the Buttock, where it must be open'd with a Lancet. E is a Wire which is passed thro' the Orifice made on the *Fistula* in the Buttock, and with the other

End passeth into the Gut, and from thence comes out by the Fundament. You must first bend your Wire as you see, then take the two Ends which you have brought together, in your Left Hand, and with your Right cut the *Fistula* with one Snip of your Scissars. This Wire serves to draw the *Fistula*, for the more convenient cutting thro' it. There are other Instruments for the making the Operation, but, for a sudden Occasion, this is very convenient. I thought it not impertinent to give you an Account of this small Machine, tho' it regards the Operation, and not the Dressing, to give you a better Idea of *Fistulas*, which are very difficult to understand.

Doffils dipt in some Anodyne Unguent, to appease the Pain in the first Dressing; but after let them be dipt in some good Suppurative, and put as many of them as you can into the Sinus, to dissolve the Callosities.

3. Pledgits to cover the Doffils: For the first Dressing, dip these in some Anodyne Liniment, and after make use of Digestives.

4. An Emplaster of *Diapalma*, or some other, as you judge convenient for covering the Pledgits. This must be cut on one Side, in Form of a Crescent, that so it may fit the Side of the *Anus*.

5. A great Compress made Triangular, that it may be more handsomly apply'd by putting the greatest Side towards the Fundament.

6. The double T to make a Bandage for the keeping on all the Dressings. This is made of three Pieces stitched together. Put the Middle B on the Back: Pass the Straps C C between the Legs; cross them, and bring them over the Dressings.

For y^e FISTULA IN ANO Tab: 34.

p: 63.

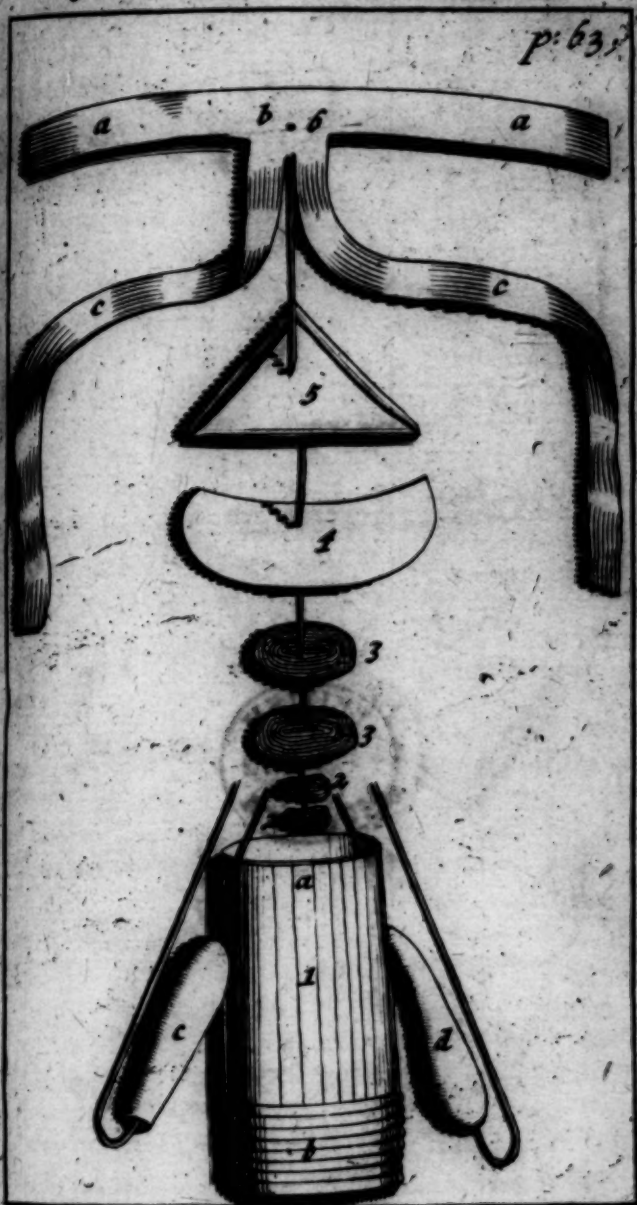
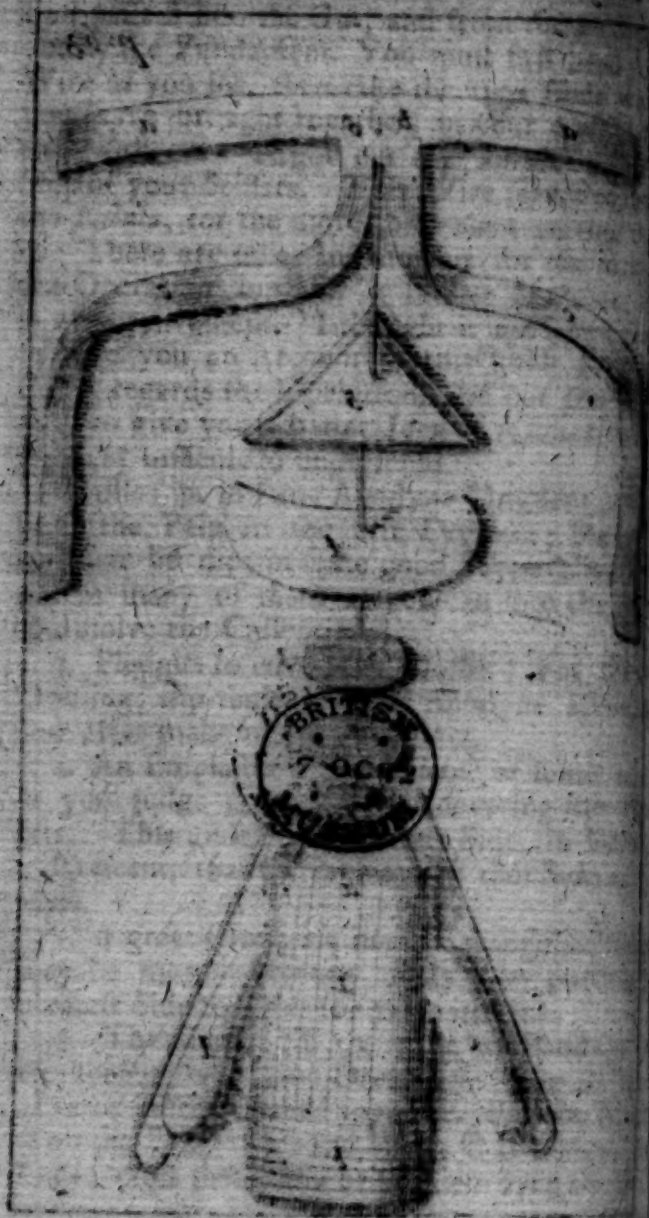
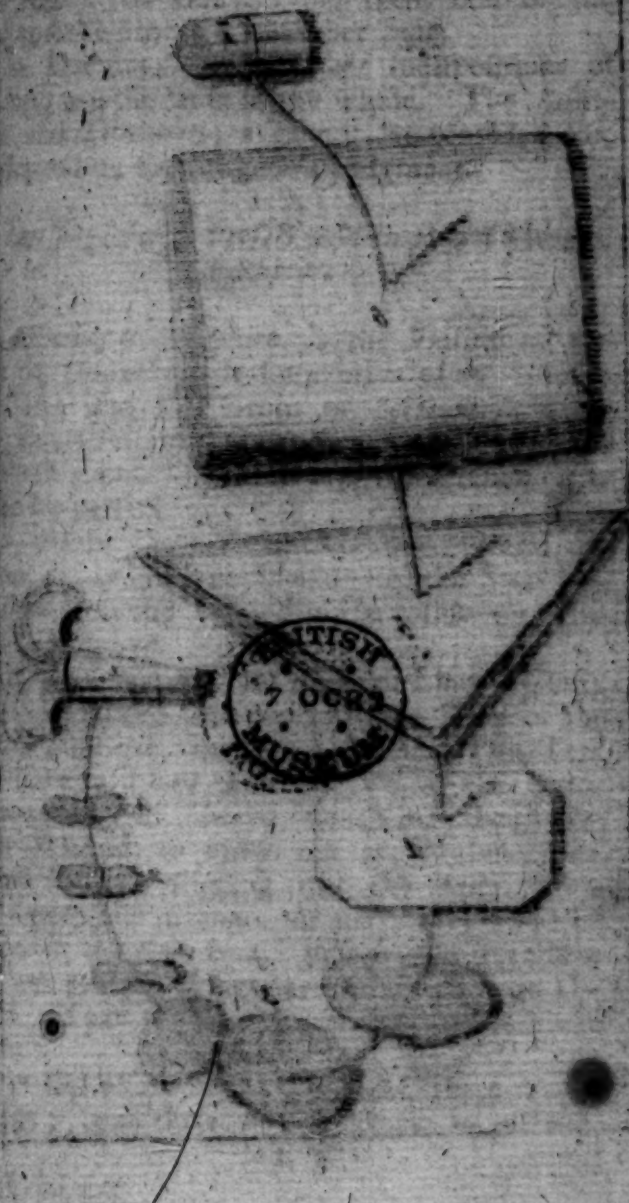


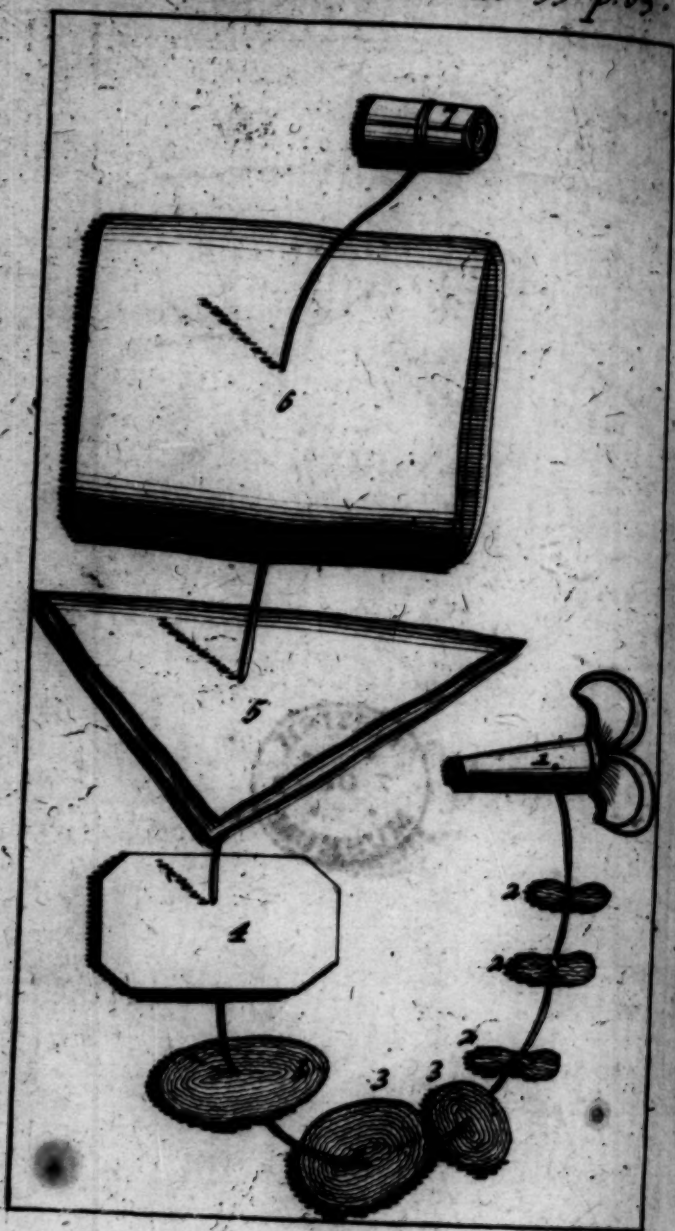
PLATE IV. NO. 14.



AT-BRONCE



For y BUBONCELE Tab: 35. p. 65.



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ings, and fasten them to the Girth A A which goes round the Body, tying them one on the one, and the other on the other Side.

The Dressings for all other Indispositions of the *Anus* are the same in the whole. The Additions and Diminutions cannot be provided for, but depend on the Surgeon's Judgment.

The Dressings for a Perfect and Imperfect Hernia, or Rupture.

A *Hernia*, or Rupture, is the Falling of the Guts or *Omentum*, or some other of the Intestinal Parts into the Groin or *Scrotum*. When these Parts fall into the Groin, the Rupture is imperfect; but if they fall into the *Scrotum*, it is said to be perfect.

To reduce these Parts into their natural Situation, make a large Incision on the Swelling, and then dress the Wound in the following manner. See Fig. 35.

1. A large capped Tent made of Linnen Cloth, to be introduced into the Hole or Ring of the Muscles after the Guts are reduced. This Tent must have a Head, and be ty'd at the upper End with a good Thread, which may hang out of the Wound, to draw out at Pleasure, and prevent it from slipping into the Belly. We have shewn the Manner of making this in the Chapter of the *Empyema*. Before you introduce this Tent into the Rings, arm it with a good Digestive. That used in the *Hôtel-Dieu*, is made up thus:

Take Oil of Roses three Ounces, three Yolks of Eggs; beat these with a Stick in a Dish,

till the whole be very well mix'd ; and this is a very good Medicine against all Accidents. The Tent must be blunted at the End, for fear of hurting the Gut, and must be long enough to hinder the Guts from beating on the Rings, which would hinder the Coalition of the Wound.

Some Practitioners prefer a thick short Tent, made of Lint ; but it ordinarily happens that this Tent frustrates the Operation, as I have heard M. *Morell*, an able Surgeon of *Paris*, affirm, it not being stiff enough to resist the Impulsion of the Guts.

2. Dossils made of Lint, and dipt in the above-mention'd Medicine, to fill up the Wound.

3. Pledgits of Lint dipt in the same.

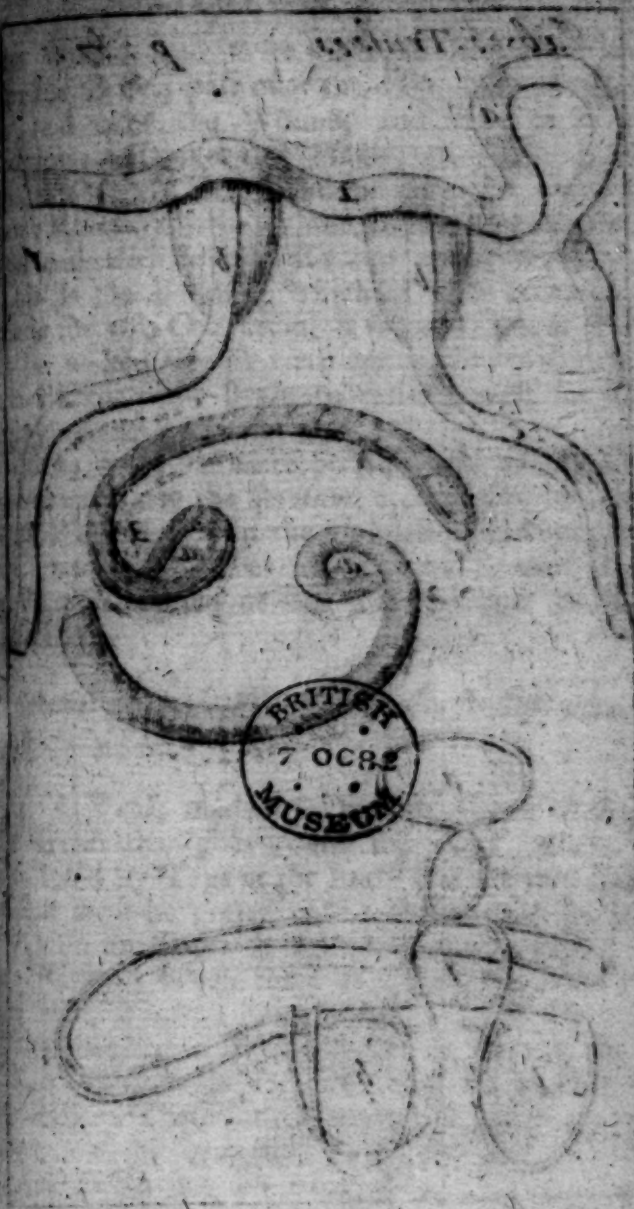
4. A large Emplaster to cover the former Dressings.

5. A large Triangular Compress to be laid over the Emplaster. This must be in several Doubles, and its largest Side laid towards the Groin.

6. A great square Compress in four Leaves, which must cover the Dressings, and the whole Belly. This Compress is made use of, because, before the Bandage is made, the Belly must be anointed with a strengthening Liniment ; and this keeps the Patient's Linnen and Clothes from being fouled by the Medicine.

7. A Roller of an Inch and a half broad, and three Ells long, rolled up at one End only, for making the Bandage call'd the *Spica*. To make this, put the End of the Roller on the Hip opposite to the Side affected, and then bringing it over the Belly and over the Wound, pass under the Buttock : Bring back the Roller over the

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the Wound, and there make an X: Turn under the Back; pass over the Hip, over the Belly, and over the Wound, and there make an Edging; pass over the Thigh; turn round and make a second X. Continue thus the Turns of your Roller, till the whole Dressing be covered, and end with several Rounds about the Body. This is the Bandage which is most commonly made for this Operation, it is good, but it were to be wished that it were more convenient, for the Patient must strain to raise himself for the carrying the Roller under.

If the Rupture were perfect, and an Incision were made into the *Scrotum*, it ought to be filled with Pledgits dipt in the aforesaid Liniment, and a Compress laid over all, and the *Scrotum* kept up in a Suspensory or Bag-Truss, which shall be described.

Several different Kinds of Trusses for Ruptures.

See Tab. 36. Fig. 1.

1. A Truss made of Dimety, of which A is the Girth that goes round the Body, where it is fasten'd by Tags at the End. B B are two Balls which must be pretty hard; these are to be apply'd on the Groin on each Side on the Places of the Rings. When there is a Rupture only on one Side, it is best nevertheless to use the double Truss, because it is more steady on the Part. C C are two Straps fasten'd to the under Part of the Balls. These Straps must pass between the Legs, and be brought up behind, and fasten'd to the Girth one on each Side.

This Bandage is good in small Ruptures, but useless in large ones, where you must have recourse to Steel Trusses. *Tab. 36. Fig. 2.*

2. A Truss for the Right Side, which may be made of a thick Iron Wire, and must be lined with Dinty in the Place *A*, where it is apply'd on the Swelling, or on the Groin. This Truss is good in small Descents.

3. Another for the Left Side. These are to be ty'd by Straps fasten'd to their Ends, as common Steel Trusses. They have this Convenience, that the Surgeon can make them when he has Occasion, or is in a Place where he cannot procure Steel ones, which are only to be had in great Cities. *Tab. 36. Fig. 4.*

4. A Truss made with a thick Iron Wire for the *Exomphalos*. Make a great Ball of Cloth on the upper Plate of the Iron marked *A*, which must be apply'd on the Swelling of the Navil; and let Balls be made likewise on the Plates of Iron marked *B*, which are to be apply'd to the Groin. These last serve to keep the Truss better on the Swelling of the Navil.

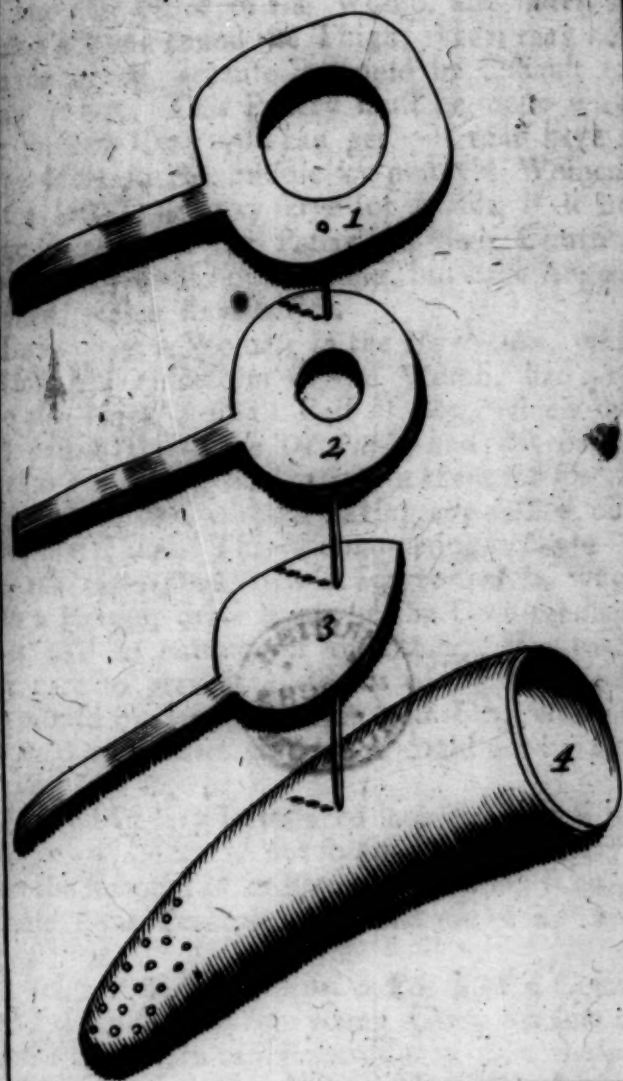
This Truss is very convenient for Ruptures of the Navil, which you dare not attempt to reduce. It has this Advantage, that being made of Wire, by its Springiness it yields to all the Motions of the Belly in Inspiration and Expiration.

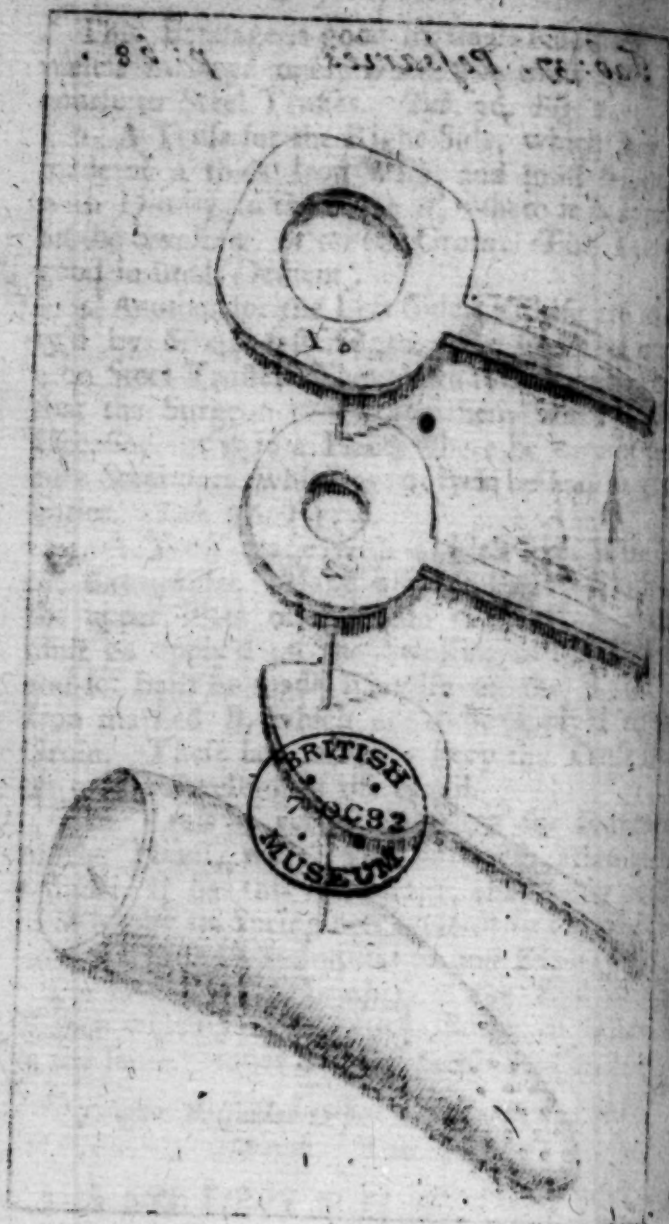
Put a Strap of Leather to the End of the Branch which goes round the Body, to fasten it in the same manner as other Steel Trusses.

Divers Pessaries to put up the Neck of the Womb. Tab. 37.

1. A great Pessary to be introduced with the Hand,

Tab: 37. Pepsaries *p: 68*





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Hand, into the Neck of the Womb after it is reduced into its Place. Thrust this as far as may be into the Neck of the Womb, and fasten it with a Ribbon round the Thigh, that it may not slip too far up, because it would be difficult to draw it out. This Pessary must be made with the thickest Cork you can get. It must have a large Hole in the middle for marry'd Women, but a small one may serve for Maids, if it be large enough for the Passage of their Courses. This Pessary must not be round, but have Angles blunted, which stays better.

I have seen a Woman in the *Hotel-Dieu*, who having had a Descent of the Womb, had put into the Neck a small Ball of Box, which she had passed above the *Os Pubis*, and not being able to get it out, had carry'd it there for fifteen or twenty Years, without having any falling out in all that Time. This Woman being brought ill into the *Hotel-Dieu*, tells a Surgeon of it, who, with a *Forceps*, drew it out, in the same manner as is us'd in cutting for the Stone. You must take care to prevent Accidents of this kind, for this would hinder Generation, and if the Woman happen'd to be with Child, she could not be deliver'd. See Fig. 2.

A round Pessary introduced into the Womb to keep it up. This is not so good as the former, upon the Account of its Figure. I mention it only because some Practitioners make use of it. See Fig. 3.

A solid Pessary made in a Form of a Cone. This Pessary is good for young Girls, because it is lesser and more easily introduced than the others, and you must make as little Dilatation in
Maids

Maids as is possible : But it is not so steady as the first, by reason of its Figure. Tie this too round the Thigh with a Ribbon. See Fig. 4.

A large Pessary made hollow like a Horn with several Holes. This is put up the Neck of the Womb to receive Fumigations.

The Dressing for Castration.

Castration is an Amputation of the Testicle when it is Gangren'd or Mortify'd, or is so straitly united to the Gut, that it cannot be separated without taking off pretty much of its Substance, or when it is contused and bruised, and the Circulation is interrupted, or it is Varicose. When the Operation is made, apply this Dressing. See Tab. 38.

1. A good Wax Thread in four Doubles, for tying the Vessels as high as may be towards the Belly, before you take off the Testicle. First make a Turn as near the Rings as you can, and tie it, then make a second Turn, and make two Knots above. It is best to leave the Ends of the Threads without cutting them, and draw them a little to the Side of the Wound.

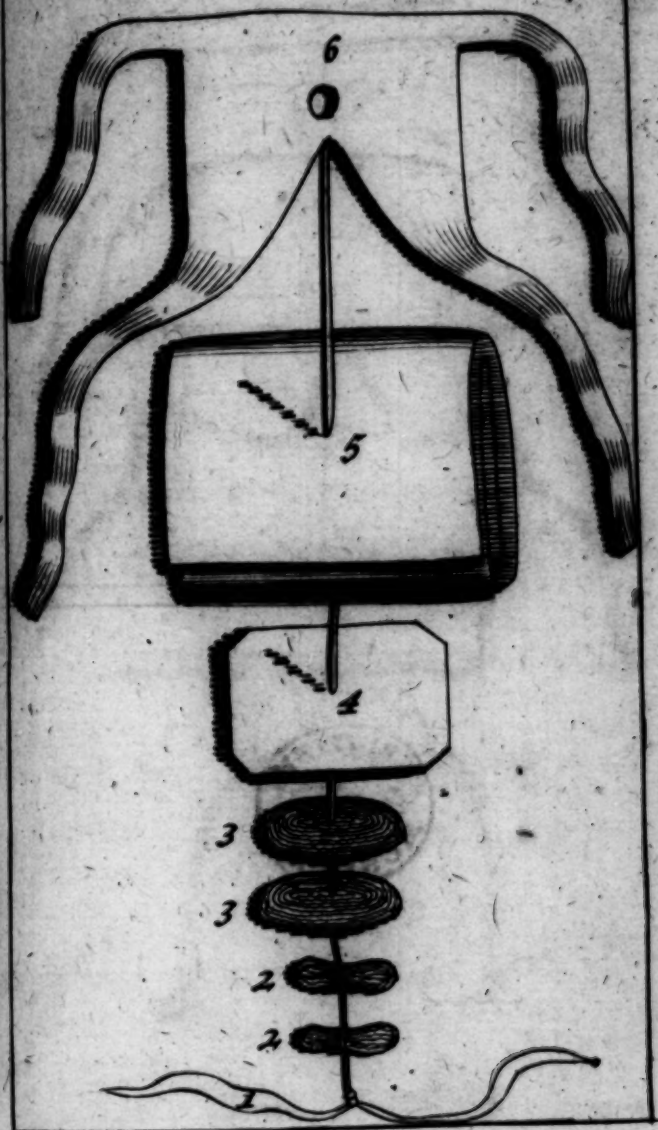
2. Several Dossils of Lint to be dipt in some good Digestive to promote the Suppuration, and dissolve the Carnosities, which most commonly attend this Indisposition.

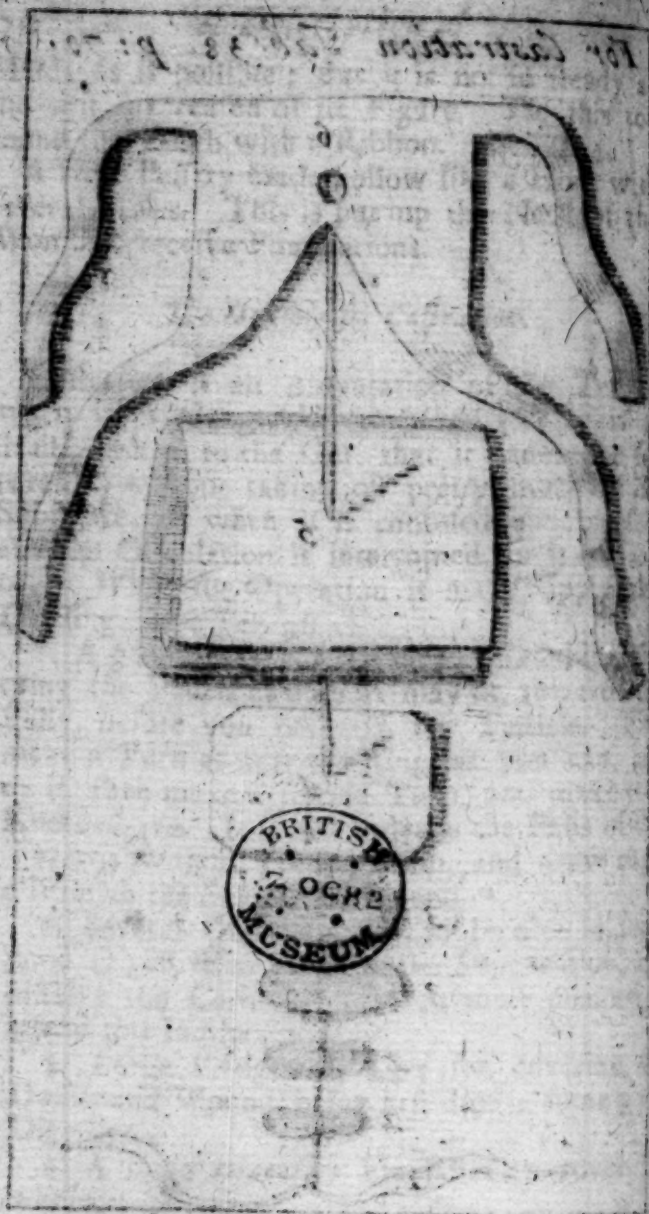
3. Large Pledgits of Lint for covering the Dossils and Wound, being first dipt in some good Digestive.

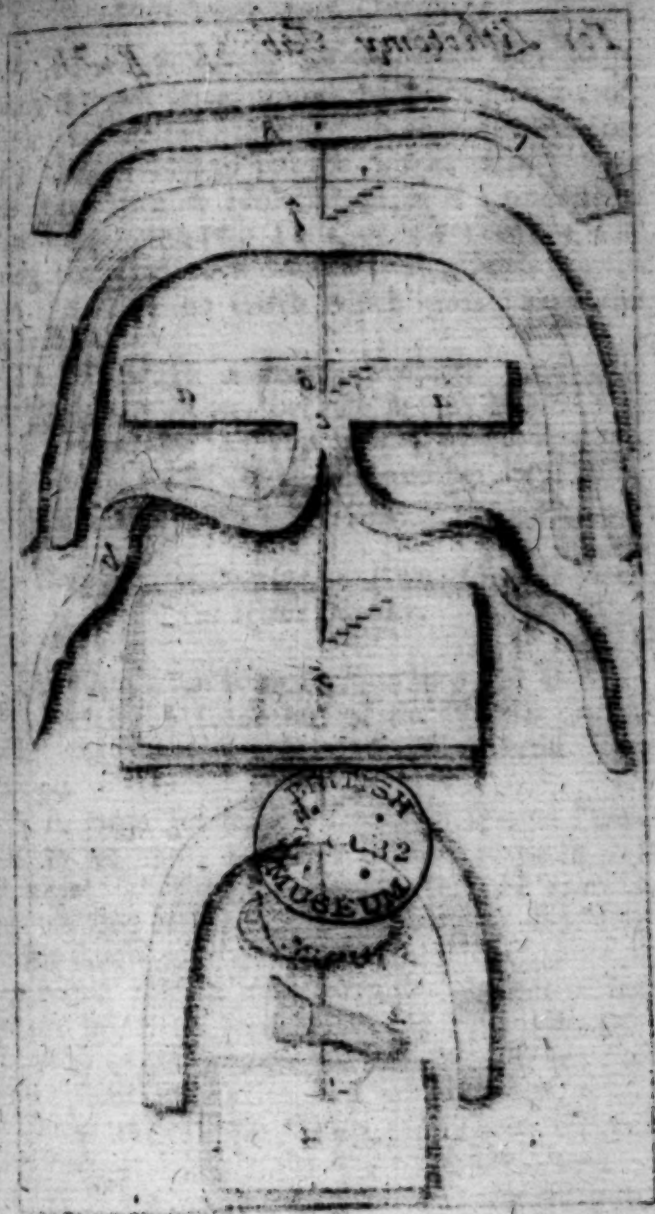
4. A large *Diapalma* Emplaster to cover the whole.

5. A Compress in four Doubles, to cover the Emplaster.

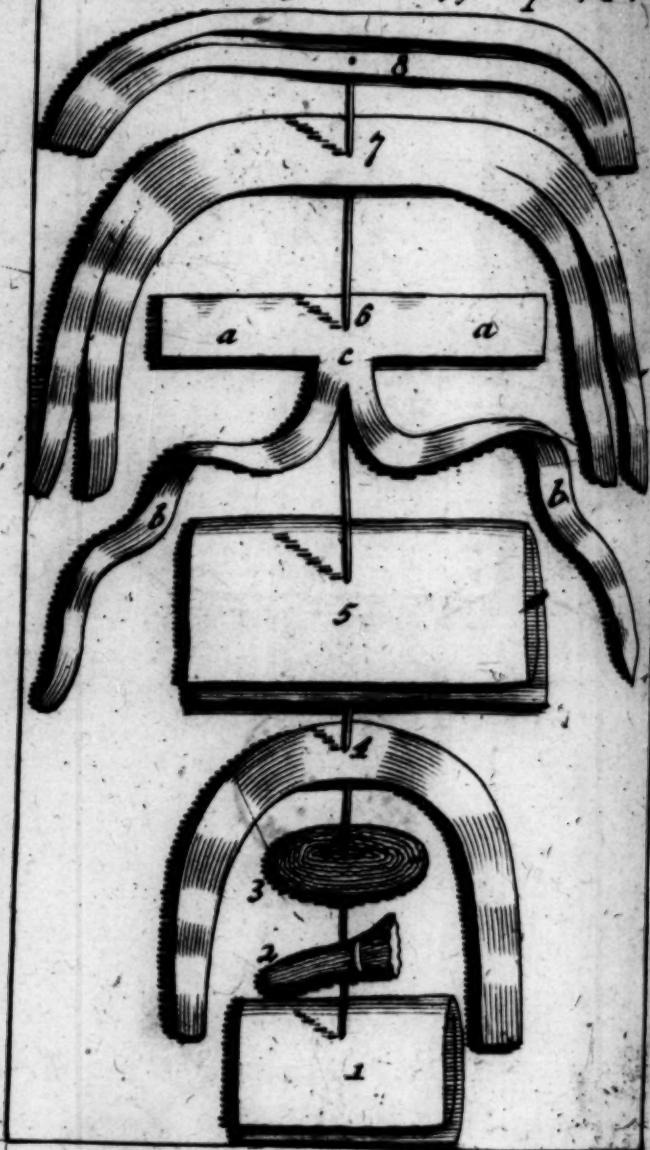
For Castration Tab: 38. p: 70.







For Lithotomy Tab: 39. p. 71.



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6. A Bandage of the *Scrotum* with four Tails. Bring the two upper round the Body; then cross the lower one over another, so as to form a sort of Pocket or Bag to put the Stones into, passing the Yard thro' a Hole made in the undivided Part. Raise the two Tails, or lower Straps, and bring them on each Side over the Groin, to fasten them to the Girth which goes round the Body.

This Bandage is very convenient, and preferable to any other, because it may be made as great or as small as you please, by crossing the Tails more or less over one another, and with three or four Cuts of the Scissars it is done.

The Dressings for Cutting or Extracting the Stone out of the Bladder.

This Operation is an Incision into the *Perineum* to fetch the Stone out of the Bladder; after which the following Dressings are made. See Tab. 39.

1. A large square Compress in several Doubles, to be apply'd on the Wound made in the *Perinaeum*, that so the Patient may be carry'd into his Bed as soon as he is cut, for fear lest the Air should hurt the Wound.

A robust Fellow must carry the Patient to his Bed in his Arms, and have one Hand on the Compress to keep it on the Wound. When the Patient shall be laid in Bed on his Back, with his Knees raised, the Surgeon may take off the Compress, and apply the following Dressings.

2. A Tent of Lint to be introduced into the Wound, when there is Ground to believe
some

some Fragments of the Stone are in the Bladder, which is known by looking on the Stone which is taken out, for if it appear to be broken, it may be imagined there remain some Parts in the Bladder. On the contrary, if it be polite and smooth, it may be believ'd to be entire. But instead of the Tent, I think it better to put a Silver Pipe into the Wound.

3. A Pledgit of Lint as long as the Wound, which it is laid over, being first cover'd with Bole to stop the Blood.

4. An Emplaster to lay over the Pledgit, this must be shaped like a Horse-Shoe, and be cover'd with Bole. The broad Part is apply'd on the Wound, and the two long Branches towards the Groins between the Cods and the Thigh.

5. A large oblong Compress doubled, dipt in warm Oxycrate, which is apply'd over the Dressings, and with the other End the Cods are kept

1. A good Wax Thread in four Doubles, for tying the Vessels as high as may be towards the Belly, before you take off the Testicle. First make a Turn as near the Rings as you can, and tie it, then make a second Turn, and make two Knots above. It is best to leave the Ends of the Threads without cutting them, and draw them a little to the Side of the Wound.

2. Several Dossils of Lint to be dipt in some good Digestive to promote the Suppuration, and dissolve the Carnosities, which most commonly attend this Indisposition.

3. Large Pledgits of Lint for covering the Dossils and Wound, being first dipt in some good Digestive.

4. A large *Diapalma* Emplaster to cover the whole.

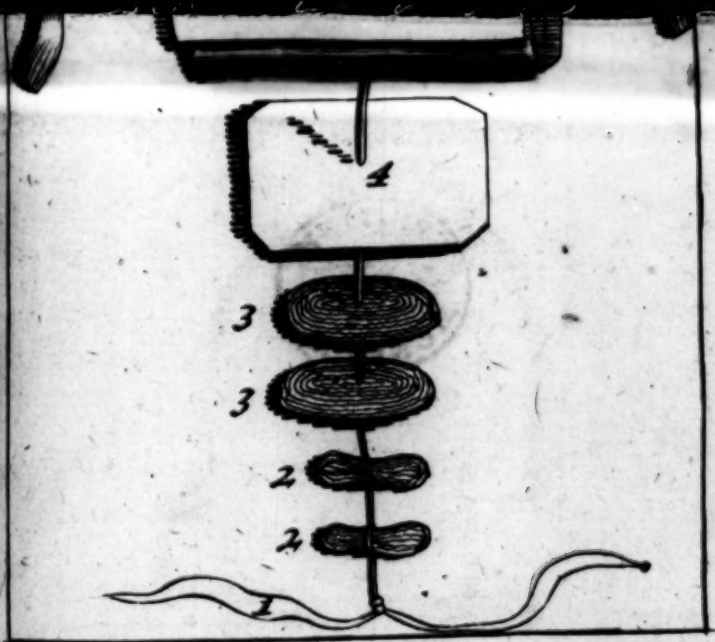
5. A Compress in four Doubles, to cover the Emplaster.

7. A Sling with four Tails. Apply the undivided Part on the Wound; bring the two Tails behind on each Side, and fasten them to the Scapulary; bring the two other Tails up before, and, crossing them, fasten them to the Scapulary, as before.

8. The Scapulary often describ'd before.

The Dressing for a Dislocation of the Thigh.

This is made with a large simple Compress, wetted in Oxycrate, or Wine heated, to encompass the Joint, and then make the Bandage called *Spica*, with a Roller with one Head two Inches broad, and five or six Ells in length. Suppose it was the Left Thigh which was out: Apply the End of the Roller on the Right Hip, your Patient lying on his Back, bring it over the Belly, and then over the Hip on the Side affected;



some Fragments of the Stone are in the Bladder, which is known by looking on the Stone which is taken out, for if it appear to be broken it may be imagined there remain some Parts in the Bladder. On the contrary, if it be polished and smooth, it may be believ'd to be entire. But instead of the Tent, I think it better to put a Silver Pipe into the Wound.

3. A Pledgit of Lint as long as the Wound, which it is laid over, being first cover'd with Bole to stop the Blood.

4. An Emplaster to lay over the Pledgit, this must be shaped like a Horse-Shoe, and be cover'd with Bole. The broad Part is apply'd on the Wound, and the two long Branches towards the Groins between the Cods and the Thigh.

5. A large oblong Compress doubled, dip't in warm Oxycrate, which is apply'd over the Dressings, and with the other End the Cods are kept up, being first Humect'd with Oil of Roses, to assuage the Pain.

6. The double T to keep up all the Dressings. Bring the Girth *AA* round the Bottom of the Breast, and the Place *C* under the Back; then cross the two Tails or Straps *BB* between the Thighs, and apply the Place where they cross on the Wound. Bring these two Straps up, and fasten them on each Side to the Girth *AA*, which you have brought round the Body, having first well embrocated the Abdomen with good Oil of Roses, as well as all the contiguous Parts.

In the *Hotel-Dieu*, instead of the double T, they make use of a large Sling with four Tails. This Bandage is good, and, if you think fit, may be made thus.

7. A Sling with four Tails. Apply the undressed Part on the Wound; bring the two Tails behind on each Side, and fasten them to the Scapulary; bring the two other Tails up before, crossing them, fasten them to the Scapulary, before.

8. The Scapulary often describ'd before.

The Dressing for a Dislocation of the Thigh.

This is made with a large simple Compress, wetted in Oxycrate, or Wine heated, to encompass the Joint, and then make the Bandage called *Spica*, with a Roller with one Head two inches broad, and five or six Ells in length. Suppose it was the Left Thigh which was out: Apply the End of the Roller on the Right Hip, your Patient lying on his Back, bring it over the Belly, and then over the Hip on the Side affected; turn under the Thigh; re-ascend over the Hip affected, and there make an X over the first Turn of the Roller; turn behind the Patient's Back; pass over the sound Hip, over the Belly, over the Hip affected, and make an X and an Edging on the first Turns: Continue the Turns of your Roller, till the Hip be quite cover'd with the X's and Edgings you have made. As these X's fall one a little short of the other, by means of the small Edging: There is a sort of a Figure made, resembling the Ears of Corn, from whence this Bandage derives its Name. You must not make any *Spica* on the sound Hip, but only Rounds, that is, you pass the Turns of the Roller one over another, without leaving any Edging either on that Hip, or the Belly, or behind the

the Back, but only on the Part affected. Fasten the remaining Part of your Roller by Rounds about the Body, and so pin it.

The Dressing for a Fracture of the Thigh.

1. A single Linnen-Cloth, steeped in Oxycrate, or Red Wine, in which the Thigh is lapped, laying the Middle on the Fracture.

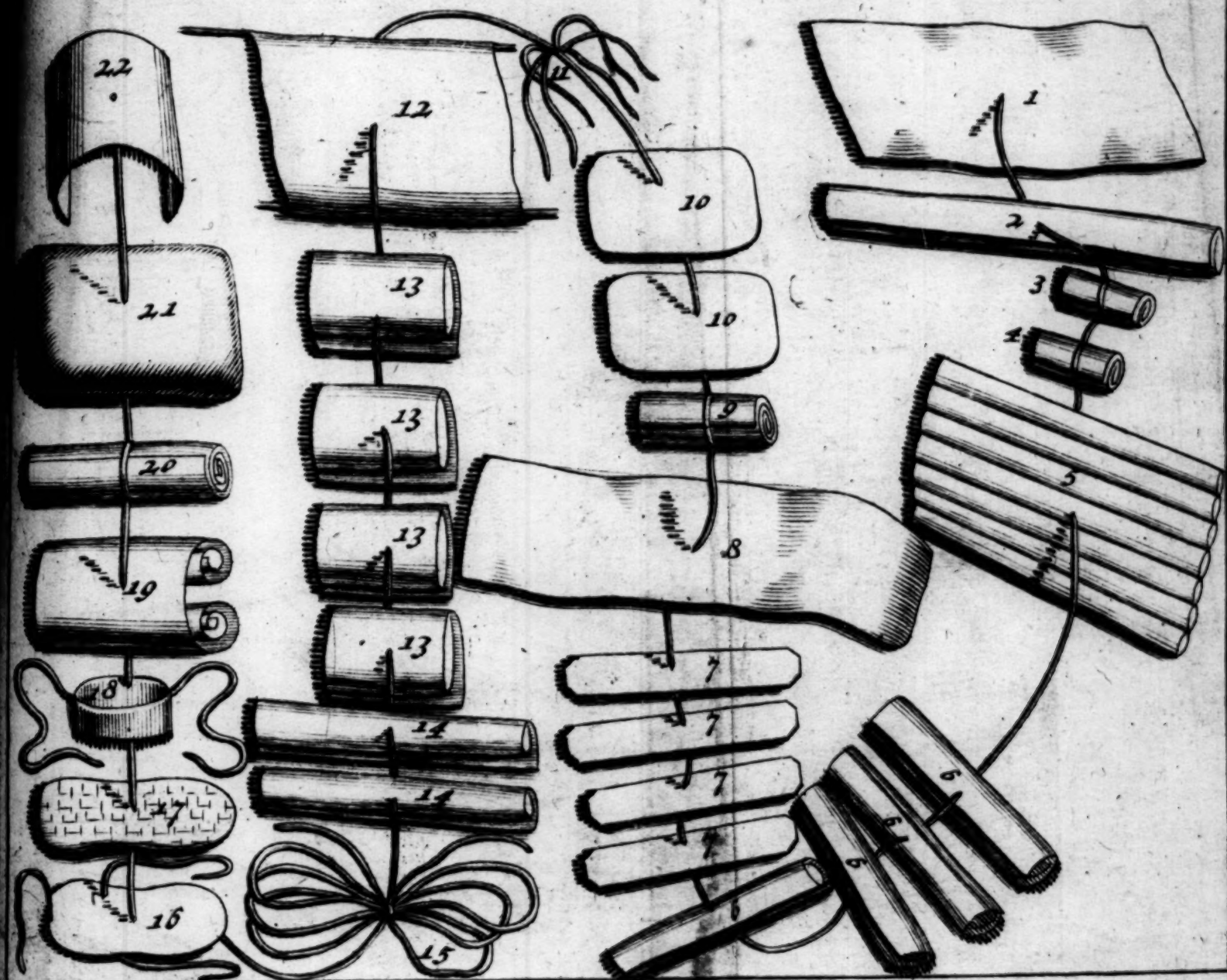
2. A large Linnen Compress, laid all along the Thigh, to fill the Curvity, that one Leg may not be longer than it naturally ought to be: If this Curvity were not filled, the Splints would depress the Bones, and the Thigh become too long: This Compress must be thick enough, and as long as the Thigh. Cast your Eyes on your Skeleton, to observe this Curvity.

3. A Roller with one Head, three Ells long, and two Inches broad, make three Rounds pretty close about the Fracture, then rise to the upper End of the Thigh with small Edgings, and fasten it about the Thigh with Rounds.

4. A Roller with one Head, four Ells in length, and two Inches broad: With this make two Rounds on the Fracture; descend with small Edgings, and fasten the Roller with several Rounds below the Knee, without covering this, having filled the small of the Thigh with graduated Compresses, before you go so low.

5. A graduated Compress turned round the Thigh, above the Knee, to make the Limb equal. The Edgings must be continued, by descending over the Compress, and the Roller fasten'd by several Rounds, about the upper Part of the Tibia, that is below the Knee.

6. Four



Bandages and Dressings. 75

Four long Compresses of about six Inches, four Doubles, to be apply'd on the Fracture: they must be of the breadth of three Points of a Finger, and laid so, that the Spaces between them may be equal.

Four Splints of the same length and breadth as the Compresses laid over them: These Compresses must be rounded at the End, must be very tender and pliant, and made of a very light Wood.

A large Compress of Linnen-Rags, dipt in Syrate, or Wine heated, to embrace the Splints, Step towards keeping them fast on the Part.

A Roller with one Head, four Ells long, and two Inches broad, with which the Splints are embraced: Begin to apply this by two Rounds about the Place of the Fracture; then descend, and re-ascend the length of the Thigh with Edges, and fasten the Roller where it ends.

10. Two large Pastboards, shaped round at the End, which must embrace the whole Dressing, without touching it: These are to be dipt in the same Liquor, in which you have wetted your Dressing, to soften them, that so they may adjust themselves the better to the Part.

11. Three or four Ribbons to tie the Pastboards which embrace the Dressings: Here you must begin to tie that which is in the middle.

12. Great Junks to lay the Leg and Thigh in: The Branch between the Legs must go to the Groin, without hurting it, and the external Branch must go along on the Side of the Body, the better to keep the Leg and Thigh, and hinder the Patient from being lame, which would happen, if the Junks were too flat.

13. Four

13. Four little Cushions, or thick square Compresses, two of which are placed, one on each Side, to fill up the Cavities which are below the Knee, and two more, one on each Side the Ankle : If you have none of these small Cushions, pretty thick square Compresses may suffice, and would be as good. These last are used in the *Hotel-Dieu*.

14. Two thick Longitudinal Compresses, one of which is laid on the Thigh length-ways, and the other on the Ham length-ways, to fill the Cavity between the Junks, and tie the Junks more neatly together : Some Practitioners will not admit any of these Compresses on the Thigh or Leg, because they press it too much. You may do as you think fit.

15. Seven Ribbons to tie the Junks, that is, three for the Leg, beginning with that in the middle ; three for the Thigh, and the seventh to tie round the Body of the Branch of the Junk, which externally ascends towards the Arm-pit : It wou'd be very convenient to encompass the Branch of the Junk, which goes under the Arm-pit, with two large Napkins, folded length-ways ; one of which should pass round the Belly, and the other round the Breast.

Observe that you must spread these Ribbons on the Bed, before you place the Junks, because otherwise, you would be obliged to stir the Leg for each Ribbon, which would be very dangerous : Make the Knot on the Side of the Junks.

16. A Soal made of Wood or Pastboard, to support the Patient's Foot, which must be kept streight.

You

You must fasten three Ribbons to this Soal, that is, one at the End, the other End of which must be fasten'd to the Longitudinal Compress, which is laid length ways all along the Leg; and two more, one on each Side of the Soal: Cross these last, and fasten their other Ends to the Sides of the Junks, near the Middle: These three Ribbons serve to keep the Soal streight against the Patient's Feet.

17. A small Quilt, made of some proper Stuff to be sow'd over the Soal, whose Size and Shape it ought to have, for the more easy resting of the Patient's Foot.

18. A small Ball or Roll, on which the Patient's Heel may rest: Some late Practitioners reject this, affirming that it hurts the Heel: They chuse rather to roll up a Napkin at both Ends, and lay the Heel on it, which, by this means, will only bear on the Middle of it.

19. A large Piece of Linnen, rolled up at both Ends like Junks, on the Middle of which the great Tendon may rest; to wit, between the two Heads, that so the Heel may not be hurt: If the Patient shall in Time come to feel any Pain in the Tendon, roll up a Cloth at one End, and rest the Heel on it; having taken away the two Rollers, in the Middle of which the Tendon is placed, continuing thus till the Cure be compleated.

20. A Piece of Linnen rolled soft, to be laid under the Heel, as was said.

21. A Roller on which the Leg and Thigh is placed, the Foot must be a little more raised than the Thigh.

22. A Cradle of Wood to bear off the Cloaths, and keep them from hurting the Part.

The

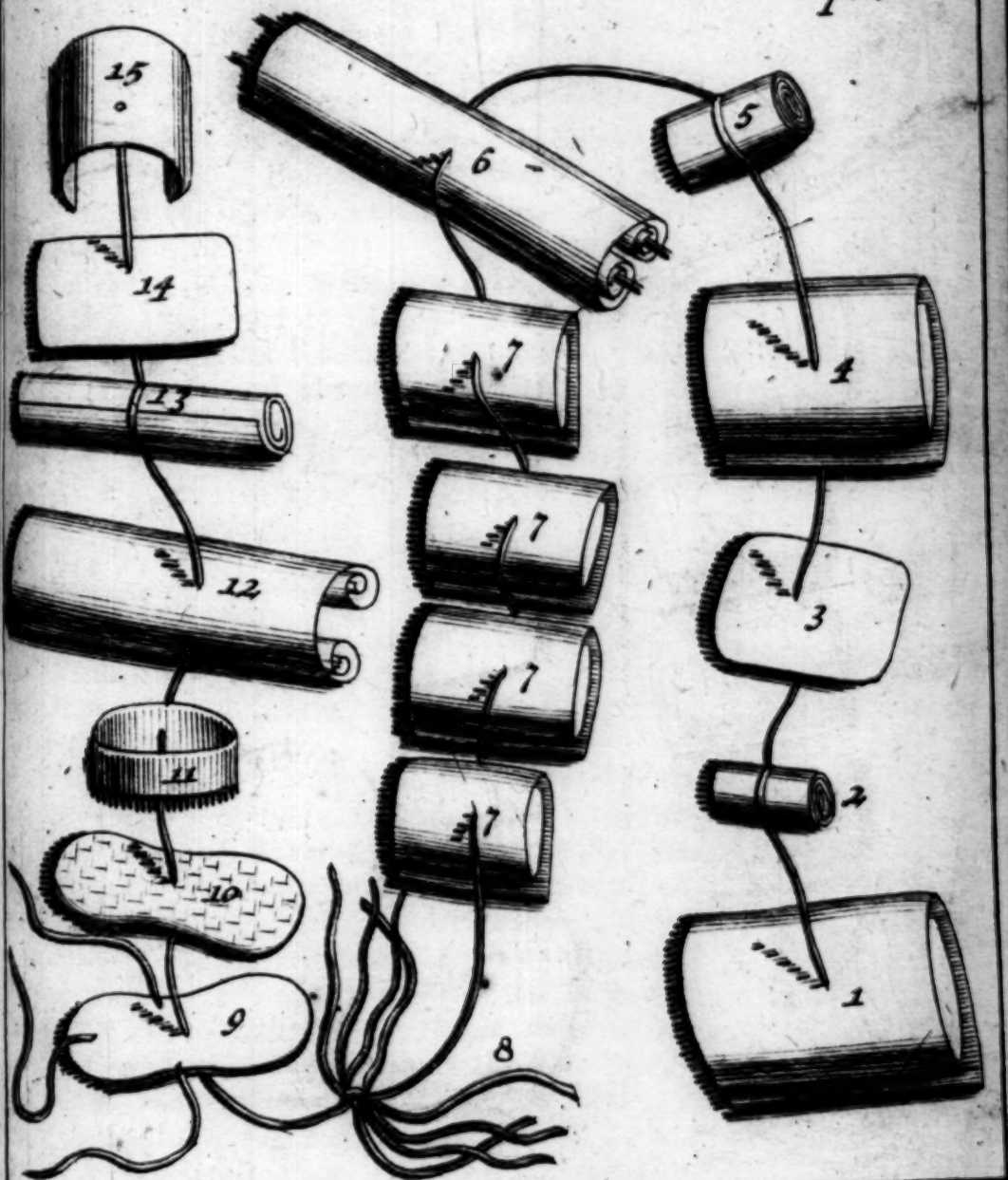
The Dressing for the Rotula broken transversely.

See Fig. 41.

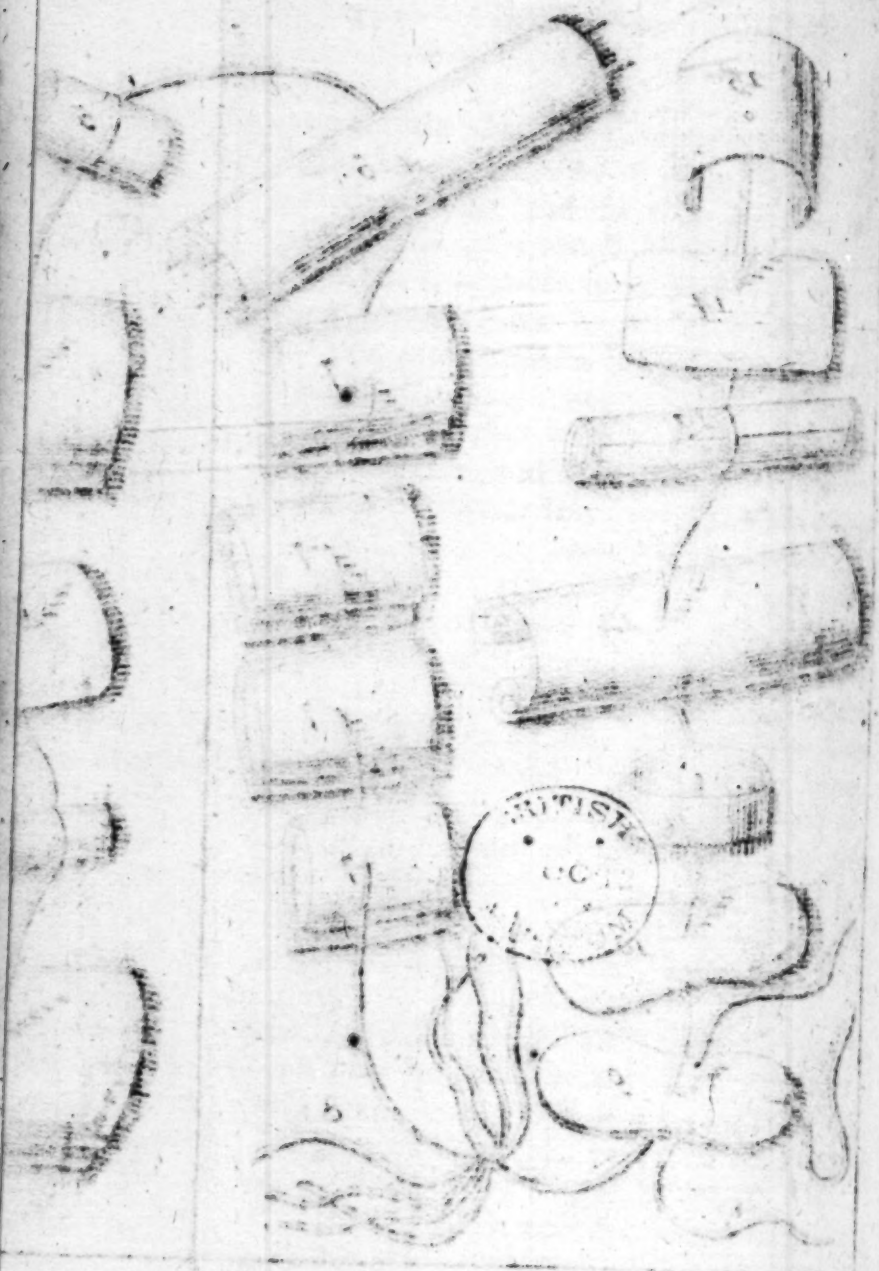
1. Lay under the Ham a Compress of about an Inch in thickness, one End of which must advance under the Thigh, and the other under the Leg, it must be large enough to embrace half the Ham : This Compress hinders the Bandage from pressing too much on the Blood-Vessels and Tendons. You must make a Servant hold it on the Place where it is laid ; and then,

2. Take a small Roller with two Heads, three Ells long, and an Inch and a half broad : Apply the Middle of your Roller immediately above the *Rotula* ; descend with the two Heads under the Ham, and cross there ; rise round the Thigh over the *Rotula*, and there make an X ; continue in this manner the Turns of your Roller, above and below the *Rotula*. The X's, which you make there, will form a *Spica* above, and another beneath, opposite to the former ; when this is done, fasten your Roller above or below the *Rotula*, as you please, by a Round or two, and then pin it : All the Turns about the *Rotula*, must be pretty streight, for fear the upper Piece should be drawn up to the Thigh, by the Action of the Muscles.

3. After this, put a great Pastboard under the Ham, which may be large enough to embrace a Moiety, and long enough to advance a little under the Thigh and Leg : It must be shaped a little round at the End, and wetted in warm Wine, to soften it, that it may accomodate it self to, and keep better on, the Ham. This Pastboard hin-



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hinders the Vessels and Tendons from being too much compressed.

4. Place under the *Rotula* a thick square Compress in several Doubles: This Compress being pressed on the Part, by the Bandage above described, hinders the *Callus*, which should re-unite the two fractur'd Bones, from making any Inequalities on the *Rotula*, which would cause Pain in kneeling.

5. Take a Roller with one Head, two or three Ells long, and an Inch and a half broad; lay the End of your Roller on the *Rotula*, about which make several Rounds; rise and descend with several Edgings, till the whole Part be cover'd, then stay it by a Round or two, and pin it: Observe to keep the Compress close on the Part, to prevent the *Callus* from growing unequal.

6. The Leg and Thigh are to be placed in great Junks, which are thus made: Take a small Cloth double, and roll it over a small Staff, encompassed with Straw, which must be streight, entire, and unbroken.

7. Four thick Compresses of Linnen-Cloth, one of which is to be laid on each Side the Knee, and one on each Side the Ancles, to fill the Cavities, that so the Junks may be apply'd streight along the Leg.

8. Six Tapes or Ribbons put under the Junks to tie them round, *viz.* three for the Leg, and three for the Thigh: Begin to tie those in the Middle, and make the Knots on the Side of the Junks, on the out-side of the Leg and Thigh.

9. A Soal made of Pastboard or Wood, to support the Patient's Foot, and keep it streight;
three

three Ribbons must be fasten'd to this, viz. one at the End, which must be fasten'd by its other End, to the middle of the Longitudinal Compress, which is laid on the whole length of the Leg, and one on each Side of the Soal, which must cross, and have their other Ends pinned to the Side of the Junks, viz. one on each Side, about the Middle, to support the Foot, and keep it straight.

10. A small Quilt of the same Figure and Bigness, which must be sowed over it, for the more easy resting of the Foot.

11. A small Roll or Ball, to support the Patient's Heel. Some Practitioners reject this, because it hurts the Heel, if it be continued there.

12. A great Cloth rolled at the two Ends, as the Junks, but without either Straw, or a Staff of Wood, to support a great Tendon, on the middle A, which will be kept up by the two Globes on each Side: This is better than the former, because it does not hurt the Heel.

13. A soft Roll of Linnen-Cloth, to be put under the Patient's Heel, when he is weary of the former.

14. A Pillow to lay the whole Leg on.

15. A Cradle of Wood, to be laid over the Patient's Foot, to keep the Cloaths off.

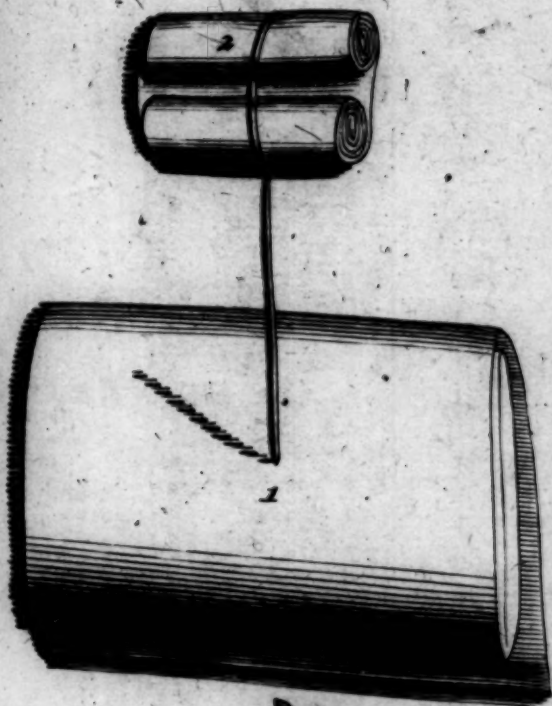
The Dressing for a Dislocation of the Knee.

See Fig. 42.

1. A Compress about an Inch thick, to lay under the Ham, to hinder the Bandage from pressing on the Blood-Vessels and Tendons: One End of this Compress must advance under the Thigh

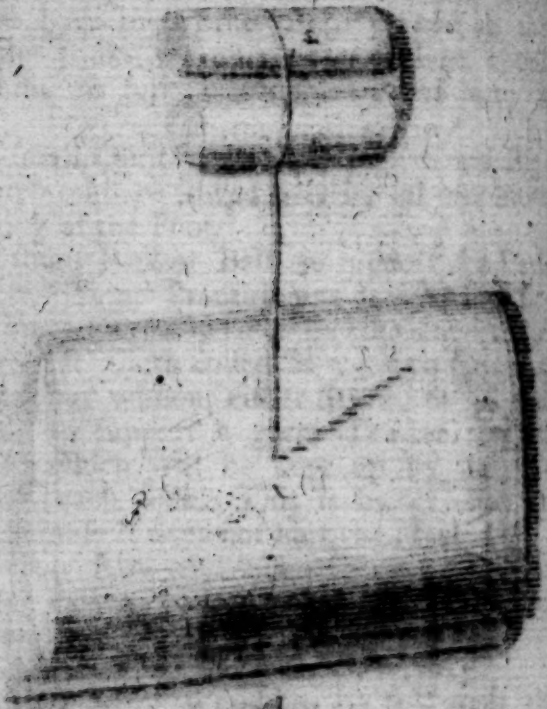
For a Dislocation of y^e Knee Tab: 42.

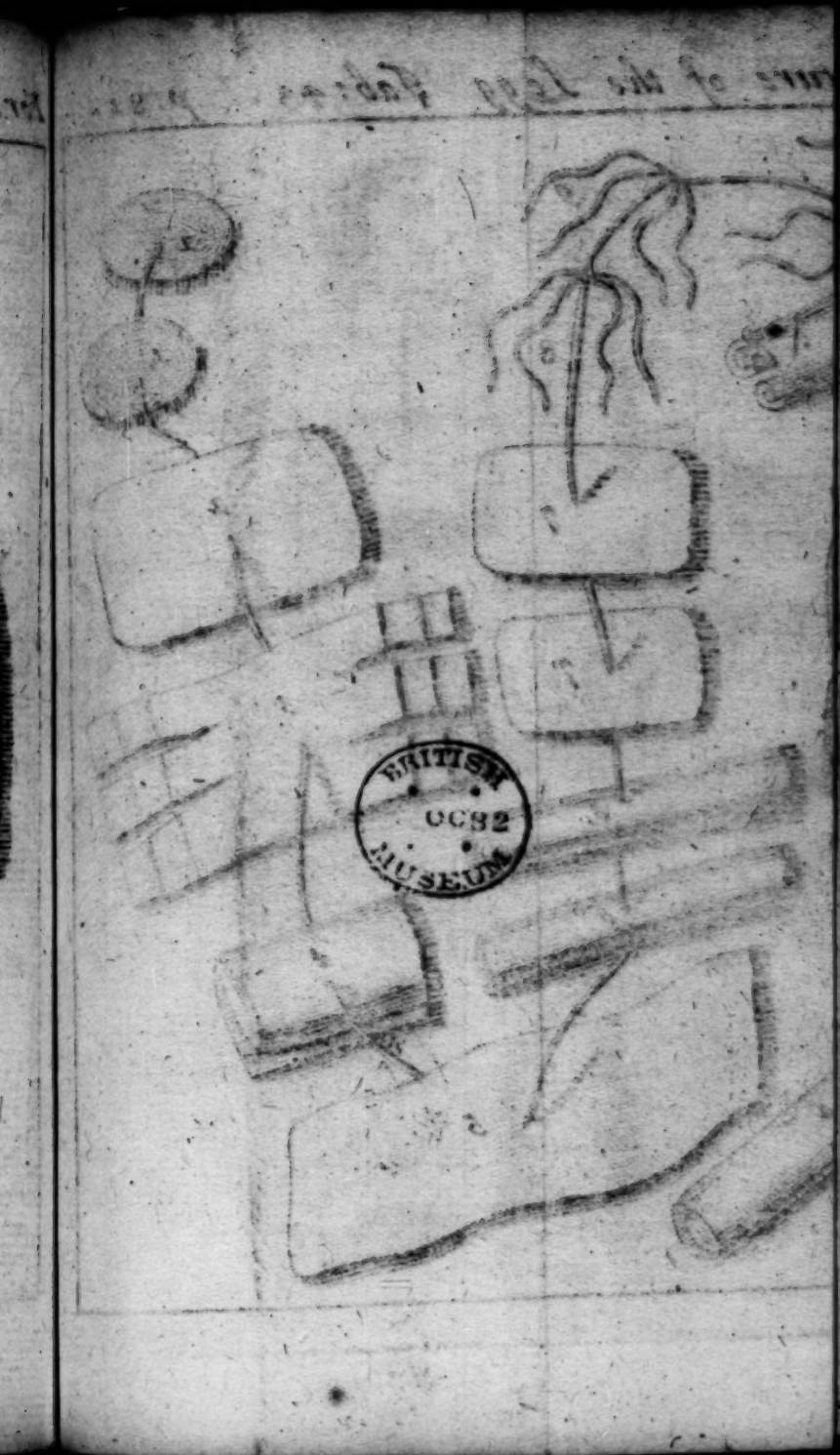
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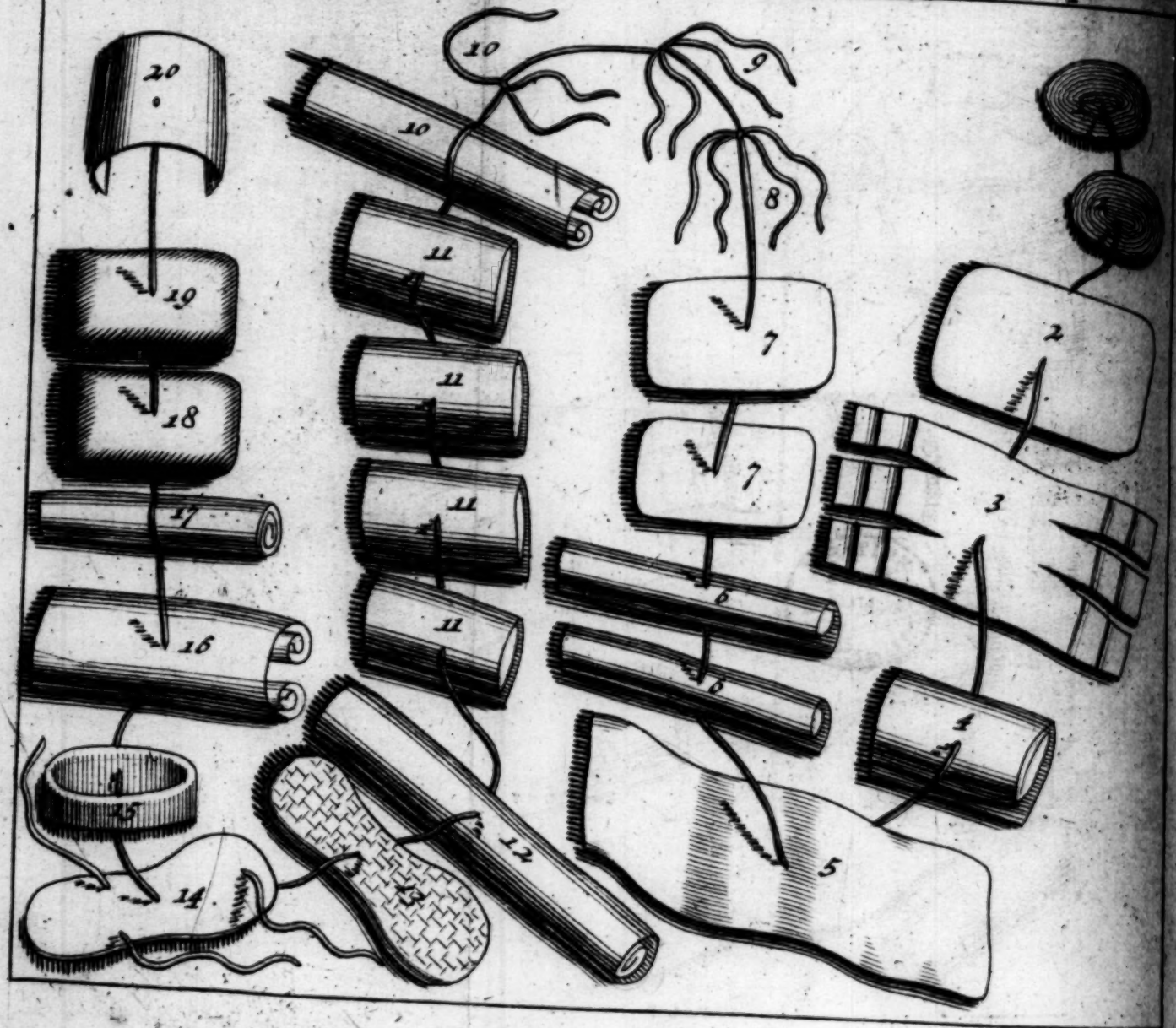


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7. 8.







Thigh, and the other under the Leg, and be large enough to embrace the Ham : Let a Servant keep this Compress on, and apply over it the following Bandage.

2. A Roller with two Heads, three Ells in length, and an Inch and a half broad : Apply the Middle of your Roller immediately above the Knee ; bring down the two Heads under the Ham, and there cross them ; turn round the Ham immediately under the *Rotula*, and make an X on the Leg ; re-ascend under the Ham, and there cross ; make an X above the Knee, approaching a little to it, so as to cover it by degrees ; descend under the Ham, and make an X on the Leg, approaching thus gradually with X's over the Knee till it be cover'd, then fasten your Roller with several Rounds above the Knee.

For laying the Leg and Thigh in Junks, read the Description before in the Dressings for Fractures of the Thigh.

The Dressing for a Dislocation of the Rotula.

This is the same with that for the Knee. See Tab. 42.

The Dressing for a Complicate Fracture of the Leg.
See Fig. 43.

1. Pledgits armed with a Liniment proper for the Wound, which must be dressed after the same manner as other Wounds.

2. An Emplaster to cover the Pledgits, and the whole Wound.

3. A

3. A Bandage with eighteen Tails, to be used instead of the simple Roller, to prevent stirring the Patient's Leg at each Dressing. To make the Bandage with eighteen Tails, take three Pieces of Cloth, as long as the Leg, and large enough to go round it, and to cross over it; lay these Cloths one over the other, and stitch them in the Middle: Cut these three Cloths at both Ends, so that the upper Cloth, that is, that which must immediately touch the Leg, may be longer by the breadth of a Finger, than that in the middle, and may be one Finger's breadth shorter than that which it lies over: The Reason of these Gradations is, because the Tails are more easily taken, each in particular by the End, to apply them over the Leg. Besides, the Cloths that are first apply'd round the Leg, thicken it; and for this Reason, the last must be larger, that they may embrace them: When the Cloths are thus cut of an unequal length at their Ends, divide 'em length-ways into three equal Pieces, by cutting them towards the Middle, where you must leave three Inches in breadth undivided: By this Section, there will be nine Tails on each Side, that is eighteen in all, from whence this Bandage takes its Name. Before these are laid round the Leg, let the whole Cloth be dipt in Oxycrate, warm Wine, or some other convenient Liqueur. Put this Bandage underneath the Ham, and over the Junks, first laying a Compress on it, to prevent the Pus from fouling it: In applying this, begin with the middle Tail, which you must bring smoothly round the Leg; pass your Hand on the other Side, to take the middle Tail on the opposite Side, which answers to the former, or to speak more

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properly, is a Continuation of it. Bring these two Laps one over another ; then raise the other Pieces of the first Row after the same manner : Observe not to lay these circularly round the Leg, but a little obliquely passing one over the other, and so this Bandage will be firmer. After you have bound up the Leg, with the first six Tails, lay on a longitudinal Compress on each side of it.

4. A Compress in one Double, to be laid on the Junk, under the Leg, before any of the Tails are rais'd : This serves to receive the Pus, which flows from the Wound, that it may not spoil the Bandage, which cannot be taken off, and put on again, without stirring the Part ; a Thing to be avoided as much as may be.

5. A single Compress of Linnen, to embrace the Leg, and cover the Pledgits, and an Emplaster ; It must be large enough for this purpose ; the Ends too must pass over one another, and it ought to be near as long as the Leg : It must be dipt in Oxycrate, or Wine heated, before it be apply'd. This Compress is laid on the Bandage with eighteen Tails, before it be wrapt round the Part.

6. Two longitudinal Compresses, of six or seven Inches in length, and an Inch and a half broad, in several Doubles, which must be laid on the Leg, the one on the one Side, and the other on the other Side of the Leg, on the Tails which are to be brought round it ; but observe not to lay them on the Wound : Two Compresses are sufficient, because the Wound takes up one part of the Leg. I do not think that any Splints of Wood ought to be laid on these Compresses, as is done in Fractures, where there is no Wound, lest too great a Compression create mischievous Accidents :
Let

Let a Servant keep the two Compresses on, and raise the second Row as you did the first, beginning with the Cloth in the Middle, which must always be wrapped round the fractur'd Bone: In the last place, raise the third Row, beginning in the same manner, with the Cloth in the midst, which you must bring over the Fracture, observing to lay each Tail a little obliquely, because, in passing one over another, the Bandage is more firm, as was said before.

7. Two large Pastboards, shaped round at the End, which embrace the whole Leg, and keep on the Dressings: These Pastboards must be dipt in Oxycrate, to soften them, that so they may fit more neatly and closely on the Part, to whose Figure they will accommodate themselves, when they are dry: These must not cross one over another: Observe, these Pastboards must be straiter below than above, because the Leg is slenderer there,

8. Three Ribbons or Tapes, to keep the Pastboards on the Part: The middle one is to be ty'd first, making a Knor, and over this a simple Bow-Knot on the out-side of the Leg.

9. Three Ribbons, or Tapes, laid on the Bed, under the Leg, at equal Distances one from the other, with which the Junks are ty'd.

10. Junks to lay the Leg in. These must not go above three Inches beyond the Knee; for if they went to the upper end of the Thigh, this being thicker than the Leg, would not be so well supported, and the Ligature made round the Thigh, would press them, and draw aside the Leg:

The Junks are made with a Cloth doubled; or in three Leaves, thus: Take a Staff about three Inches longer than the Leg; put some Straw about it, and bind this round with a Filler; then roll up the Staff encompass'd with Straw at either End of the Cloth; and these are the Junks in which the Patient's Leg is to be laid.

11. Four thick square Compresses in several Doubles, which are apply'd between the Junks and the Leg, to fill up the Vacuities, that is one on each Side under the Ancles, and one on each Side the Leg, below the Knee, in the Cavities which are there: When the four Compresses are put in the aforesaid Places, tie the Junks with the three Ribbons or Tapes laid under them, making a Knot with a simple Bow above, on the out-side the Junks.

12. A Longitudinal Compress laid all along the *Tibia*, between the Junks, and over all the Dressings before you tie the former: This Compress serves to stay the Ribbons. Some Practitioners reject this.

13. A small Quilt which is sew'd on a Soal made of Pastboard, to support the Patient's Foot and keep it streight: Tho' this Situation of the Foot is fatiguing and not natural; yet it is necessary, because it keeps the great Tendon extended, which otherwise would be shorten'd, and the Patient, after his Recovery, could not go without some Support.

14. A Soal made of Pastboard, which ought to be almost of the Figure and Bigness of the Foot: This is that which is to be cover'd with the Quilt just now mention'd: You must fasten three Ribbons to it, one at the End, which is to be pinn'd on the middle of the Leg, to the Longi-
F tudinal

rudinal Compress, and one on each Side of it, which must cross, and have their Ends pinned to the Middle of the Junks, the one on the one Side, and the other on the other. This crossing stays the Soal, that it cannot incline to one Side or the other.

15. A Roll or Ball as soft as can be made, to support the Patient's Heel: This Roll is perforated, that so the Heel bearing on the Hole, may not be hurt. Some Practitioners rather chuse false Junks after this manner.

16. False Junks to support the great Tendon, that the Heel may not be hurt, as it is in the former way: Take a pretty large and long Linnen Cloth; roll it at the two Ends, as you see in the Figure, and support the Tendon on this Cloth, between the two Heads.

17. A Roller made of soft Cloth, on which the Heel rests, when the Patient is weary of the false Junks: These Dressings may be changed alternately, according as you find he complains.

18. A Pillow laid under the Ham to fill up the Cavity, for fear lest the Leg receive an ill Direction.

19. A Pillow to be laid under the Leg.

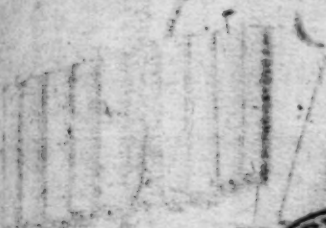
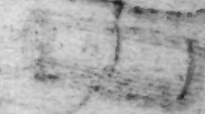
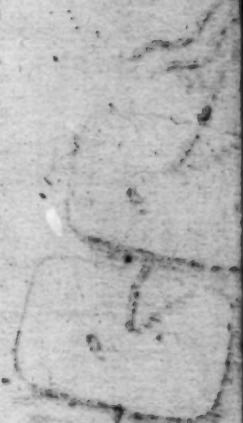
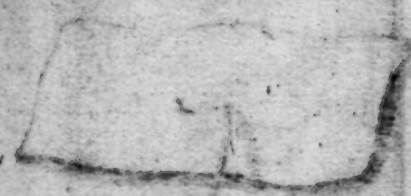
20. A Cradle of Wood to keep off the Cloaths. Nevertheless you must take care to lay something very light and warm over the Leg in Winter, for fear of the Cold.

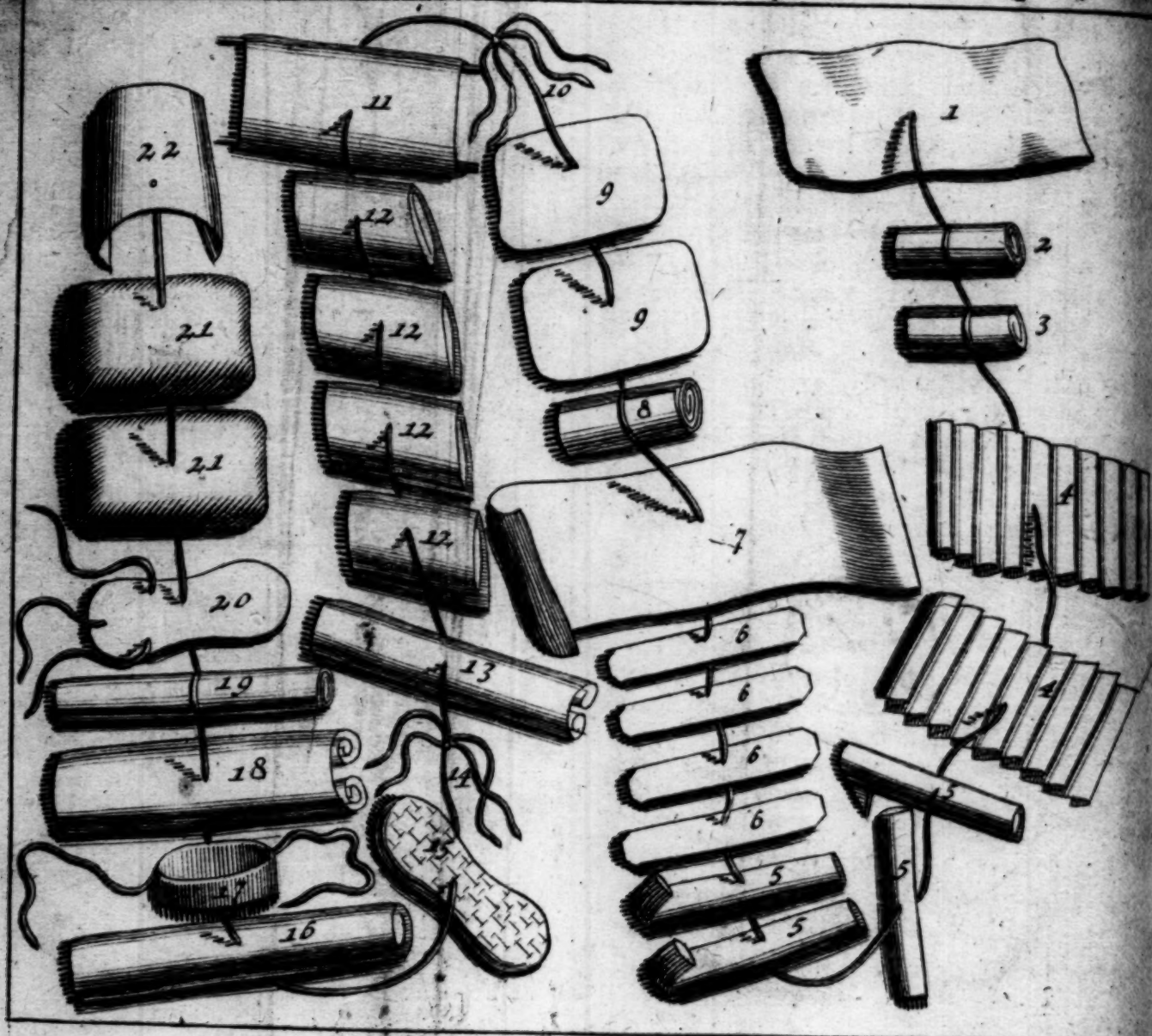
The Dressing for a simple Fracture of the Leg.

See Tab. 44.

1. A simple Compress large enough to embrace almost the whole Leg, on which it must be apply'd smooth and equally, laying one End over the other: This is to be dipt in Oxycrate, or
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Wine heated, or spread with *Ceratum Refrigerans*, if here be any Inflammation.

2. A Roller with one Head, two Ells long, and two Inches broad : Make three Rounds pretty strait on the Fracture. Bring up your Roller with small Edgings, so as to cover the whole Leg, and make it steddly with Rounds above the Knee, without covering that.

3. A Roller of three Ells long, and two Inches broad, rolled up at one End, with which you must make two Rounds about the Fracture, and then descend the whole length of the Leg, which you must cover with small Edgings : When you are come to the Foot, pass under it, and make a sort of a Stirrup ; then re-ascend over the Instep, and make an X ; ascend to the upper part of the Leg with Edgings, and pin the Roller where it ends.

4. Two graduated Compresses, or that lessen by degrees : These are apply'd to the Small of the Leg, observing to lay the thickest under the Ancles, which must not be cover'd.

5. Four Longitudinal Compresses folded in four Leaves, which are laid around the Fracture at equal Distances : These must be six or seven Inches long, and an Inch and a half broad. If the graduated Compresses, which you have laid about the Leg, is not sufficient to fill the Cavities, you may double each of your Compresses, to make the Small level with the Calf.

6. Four Splints shaped round at the End, of the same length and breadth with the Compresses, on which they are apply'd, to keep them steddly on the Fracture : These must be very thin, and made of a light pliant Wood, as Deal is, which is very proper for this Purpose.

7. A single Compress of Linnen, which must be large enough to wrap up all the Dressings: This must be first dipt in Wine heated, that so it may sit more equally.

8. A Roller three Ells long, and two Inches broad: In applying this, begin with a Round about the Fracture; then rise and descend with Edgings, and fasten it where it ends.

9. Two large Pastboards almost as long as the Leg, and large enough to embrace it without touching it: Place one on one Side, and the other on the other: You must shape these round at the Ends, and dip them in Oxycrate to soften them; by this means, they will apply themselves handsomly and uniformly over the Dressings, and become very hard.

10. Three Ribbons, or Tapes, to fasten the Pastboards which embrace the Leg; begin with tying that in the Middle: Make for every one a Knot, and a single Bow on the out-side of the Leg, and lay the Leg in Junks, after the following manner.

11. The Junks to lay the Patient's Leg in: These must be something longer than the Leg, and go near three Inches above the Knee, but must not extend the whole length of the Thigh. We have shewn before in the Dressing of the complicate Fracture of the Thigh, how the Junks are made, and why they must not run farther than this.

12. Four thick square Compresses to be laid between the Junks and the Leg, to fill up the Vacuities, *viz.* one on each Side the Ancles, between the Junk and the Leg, and one on each Side between the Knee, to fill up the Cavities.

13. Some late Practitioners, instead of these small Compresses or Cushions, chuse rather to put the

the Leg in false Junks : This is a Cloth as long as the Leg, which is spread over the Junks, and then is rolled at both Ends, not in round Rolls, but flat ones, and these are apply'd the whole length of the Leg on the Side, and the true Junks laid over them. These false Junks keep the true one steady the whole length of the Leg, and the Compresses which serve to fill the Cavities may be laid aside.

14. Four Ribbons or Tapes to tie the Junks : Lay three along the Leg at equal Distances, beginning to tie that in the Middle ; the fourth is placed above the Knee ; make a Knot with each Ribbon on a Bow over it, on the out-side of the Junks.

15. A small Quilt of some proper Stuff, which is sewed over a Soal of Pastboard or Wood, to keep the bottom of the Foot streight : Tho' this Posture of the Foot be forced, and not natural, yet it is necessary, because, if the Foot were too long extended, the great Tendon would contract, and the Patient, after his Recovery, would be forced to use something to underprop the Heel.

16. A long Compress in four Doubles, laid all along over the *Tibia*, between the Junks : This Compress stays the Ribbons with which the Junks are ty'd, and makes the Dressing more steady.

17. A small Ball or Roll to rest the Patient's Foot on, to keep it streight : If you make use of this, it ought to have an Elongation which may go up the Leg, on the Side of the great Tendon : Late Practitioners reject this, because it tires the Heel too much, and, instead of it, they make use of false Junks to support the great Tendon.

18. False Junks without any Straw or Stick in them, made with a long Piece of Cloth four

Inches broad, which later Practitioners use to support the great Tendon with, one Ankle resting on one Roll, and the other on the other : When the Patient is tired with having the Tendon between the two Rolls, take off the Junks, and place the Heel on a Roll of Cloth.

19. A Roll of soft Linnen Cloth, six Inches broad, rolled, on which late Practitioners rest the Heel, when the great Tendon is tired with lying between the false Junks.

20. A Soal of Pastboard or Wood, cover'd with a small Quilt, to keep the Patient's Foot strait : There must be three Ribbons fasten'd to this Soal, *viz.* one at the Top, whose other End must be pinned to the Longitudinal Compress on the Leg, and two others, one on each Side of the Soal, which must be cross'd on the Leg, and fasten'd to the Junks, one on one Side, and the other on the other. These three Ribbons serve to keep the Soal steady.

21. Two Pillows to be put under the Leg, one of these is to be laid under the Ham. This must be thicker under the Cavity of the Ham, than along the Leg, to fill up the Vacuity, that the Leg may not receive an ill Direction : Put the other Pillow under the remaining part of the Leg towards the Heel.

22. A Cradle of Wood to keep off the Cloaths, and hinder them from hurting the Leg : In the Winter-time you must lay some warm Linnen-Cloth over the Part, to defend it from the Injuries of the Weather, when the Cloaths are kept off from it.

The first Dressing in an Amputation of the Leg.

See Fig. 45.

1. A pretty thick Compress laid under the Ham, to make the Ligatures on, for cutting off the Leg : It ought to be long enough, that one End may go under the Leg lower than the Garter, and the other a pretty way up under the Thigh.

2. A Ligature of Cloth of an Inch and a half broad, and an Ell long, with which the Thigh is ty'd above the Knee : Make two Turns with this Ligature, and straiten it with a small Stick call'd the *Turniket*.

3. A Pastboard laid under the Ligature, which is made above the Knee, for fear of pinching the Skin, when the Ligature is straiten'd.

4. A Ligature of Cloth of two Inches broad, and about an Ell in length, with which two Turns are made pretty strait about the Garter or the Place where the Leg is to be cut off. There is no Stick required to straiten it.

5. A Turniket to straiten the Compress laid over the Knee.

The five Pieces mention'd, do not truly belong to the Dressing, but the Operation, however, being Compresses and Ligatures, we thought fit to take Notice of them.

6. A good doubled Thread, well waxed, to make a Ligature on the Arteries : To discover these, relax a little the Turniket, and let a little Blood issue out, and then straiten them again. Take hold of the End of the Artery with your

For-

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Forceps, or an Instrument made for the Purpose, called the *Valet au Paton*, which is a sort of *Forceps* which retains its hold of the Part, by means of a Ring, which is made to slip to the End of its Branches: This waxed Thread is put thro' the Eye of a small Needle, which is past thro' the Flesh below the Artery, and is passed a second time above it. When this is done, take the two Ends of the Thread, and tie them over the Artery: Make another Turn over the Vessel, and tie a double Knor, and let the End of the Thread hang down to find the Artery, if there be occasion for it. If there are more Arteries than one which spue out Blood, make as many Ligatures. Some Practitioners lay Buttons of Vitriol on the End of the Arteries to stop the Flux of Blood, which are thus made.

7. Buttons of Tow as big as the End of the Thumb, strew'd with Vitriol grossly pulveriz'd, and these are apply'd one on each Artery.

8. A small square Compress folded in four Leaves, to be laid on each Button of Vitriol, to keep it on the Vessel.

9. A large Pledgit of Tow, armed with Restraining Powders, as Bole, *Terra Sigillata*, Colophony, viz. to cover the Wound, and stop the Blood: This must be pretty thick, and a little hollowed in the Middle, for the better retaining the Vitriol. Lay this in your Hand, and so apply it on the Stump.

10. A Hog's Bladder cut four ways, leaving the Middle undivided: Arm these with the same Restraining Agents as you did the Tow, and apply it over the Pledgit; then raise the four Ends above
the

the Knee, to wrap the lower end of the Thigh handfomly.

11. A Compress in four Leaves to be laid on the End of the Stump, that is on the Bladder, for the better compressing it.

12. Large Pledgits of Tow arm'd with Bole Colophony, *Terra Sigillata*, and other Astringents, to be apply'd on the Amputation as that before.

13. A dry'd Hog's Bladder cut four ways, as the former, the Middle being undivided : Bring the Ends above the Knee, and wrap the lower end of the Thigh handfomly up.

14. A large Emplaster of Bole, cut in the Form of a Cross of *Malta*, to be laid over the Bladder : It must be large enough to bring above the Knee. To apply this methodically, take the lower Tail with both Hands, between the Thumb and Fore-Finger, and apply it on the Stump, and let the Servant who holds the Part keep it on. Raise the upper Tail over the Stump, and encompass the lower end of the Thigh with it, so that the undivided Part of the Emplaster be just on the Middle of the Part which is cut off; then raise the other Tails one after another, and wrap them round the Thigh.

15. A large Compress of Linnen doubled, cut in Form of a Cross of *Malta*, which is apply'd in the same manner as the Emplaster. This Compress must be large enough to cover the whole Dressings.

16. Three Compresses of about a Foot long, and of three Fingers breadth, folded length-ways into three Leaves : Lay two of these Compresses

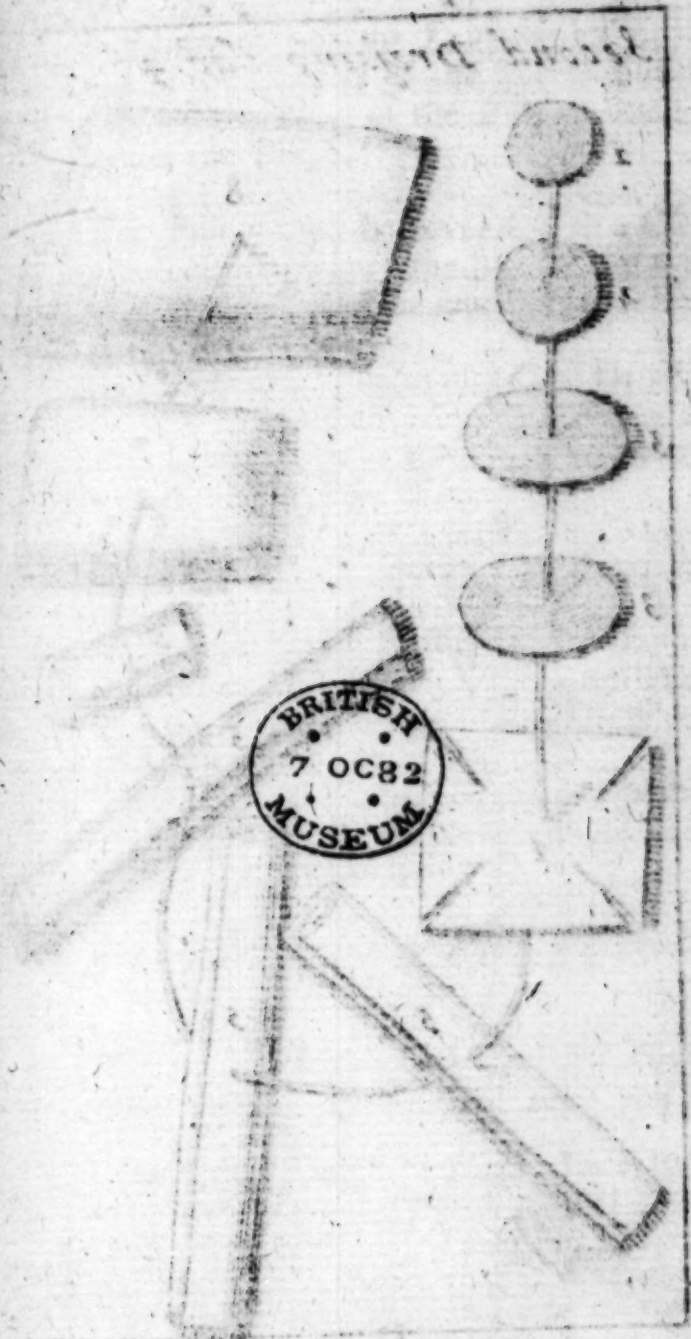
ses in such manner, that they may cross each other on the Center or Middle of the Stump. The first is apply'd according to its length on the Stump, and is brought over with its other End to above the Knee. The second passes on the two Sides of the Leg, which is cut off, and goes above the Knee. The third is apply'd below the Part cut off, to encompass the two former in such manner, nevertheless, that the two Ends may cross each other, and rise up obliquely; and this Dressing is kept on with the following Roller.

17. A Roller four Ells long, and two or three Inches broad, with one Head, to make the Bandage call'd the *Capeline*: Make three Rounds about the Part which is cut off on the Edge. After this bring up the Roller the whole length of the Stump, with small Edgings, quite above the Knee, and there make several Rounds about the bottom of the Thigh. Bring down the Roller all along on the Side of the Stump, and pass it over the Middle of the Part which is cut off; re-ascend all along the Stump, to quite about the Knee; when you are arrived there, make one Turn round the bottom of the Thigh, to stay the two Turns of your Roller, which you brought up and down. Bring down the Roller again, and pass it over the Middle of the Wound, and then re-ascend above the Knee, and make a Round to keep the Turns of the Roller steady; next descend, and re-ascend the length of the Stump, till it be quite cover'd. When you are at the bottom of the Stump, make a Round, and rise the whole length with Edgings, to embrace the descending and ascending Turns, and end with Rounds above the Knee, which must be repos'd on a Pillow on one Side.

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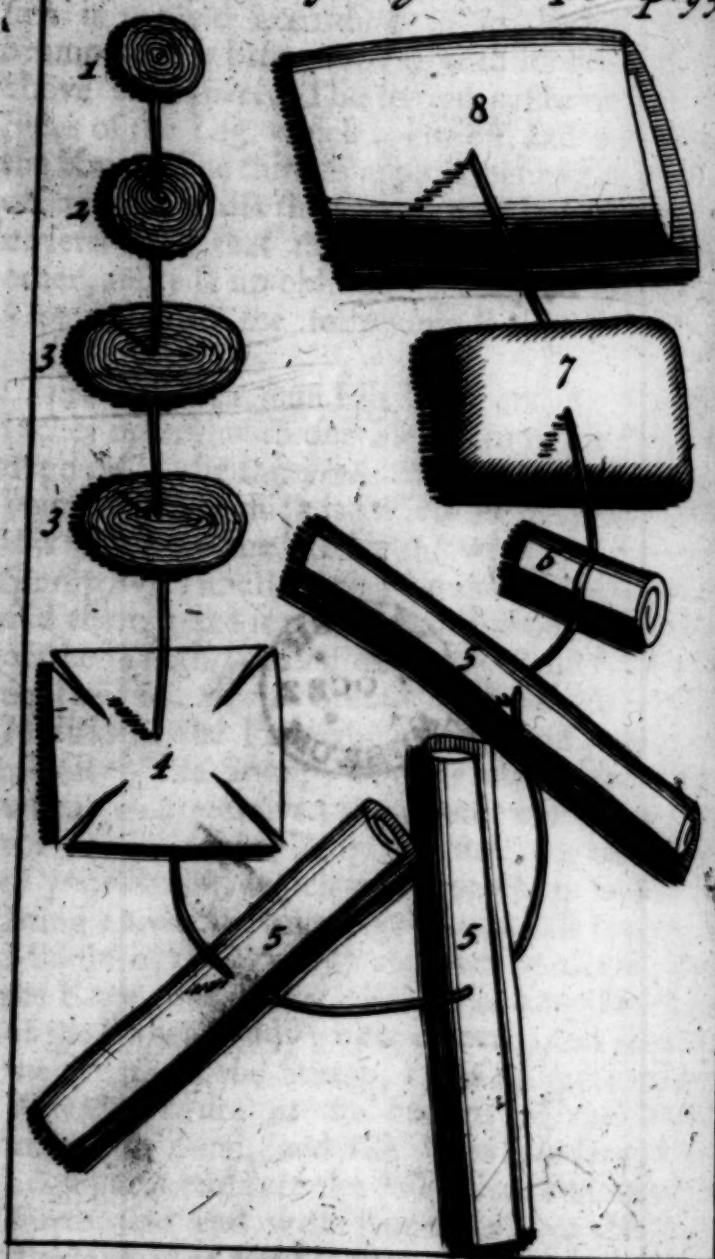
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For an Amputation of y^e Legg y^e

Second Dressing Tab. 46. p: 95.



18. A Pillow to rest the Leg, cut off on its Side ; one of the Corners of the Pillow must be beaten up with a Blow of the Fist, to bring it farther under the Thigh.

19. The Pillow must be cover'd with a Cloth four times doubled, to keep the Blood from fouling it. The Dressing must be taken off two Days after the Operation.

Here is a great deal to do to make this Dressing, but since it is that which Mr. *Petit* uses in the *Hotel-Dieu*, I thought fit to give it to the Reader, without omitting any Part of it.

The Reason why he uses it is, because he only contents himself with the Vitriol Buttons without making a Ligature on the Vessels, and this Dressing must be kept on the Stump by the Hand of some one or other all Night. If the Arteries are ty'd, you may abate such Part of this Dressing as your Sense shall direct you.

When you take off the first Dressing, you must apply a second, if the Blood be not stopped, but if it be, then that which follows.

The second Dressing in an Amputation of the Leg.

See Fig. 46.

1. Place on the Marrow of the lesser Focil a dry Pledgit, that the Medicines may not touch it.

2. Another dry Pledgit of Lint a little larger than the former, to be apply'd on the Marrow of the greater Focil or *Tibia*: These Pledgits must cover the End of the Bone, that the Medicines laid on the Stump, may not corrupt it, and cause

an Exfoliation, which must be hinder'd, if possible, because, it very much retards the forming of the *Cicatrix*, but it is very seldom that it can be prevented.

3. Oval Pledgits arm'd with a Digestive made of Turpentine, Yolks of Eggs, and Oil of Roses, which are laid on the End of the Leg cut off, to procure Suppuration : These must be handsomly adjusted and laid round, and a little advanced on the Leg, that so they may the better cover the Edges of the Wound.

When the Wound is well digested, and there is no Inflammation, and the *Pus* is white, not discolour'd or stinking ; let the Digestive be taken off, and spread the Pledgits with some good Detergent.

4. A large *Minium* Emplaster cut in the Form of a Cross of *Malta*, to be apply'd over the Pledgits : To do this neatly, take one of the Bars of the Cross, with the Thumb and Fore-Finger of each Hand, apply this pretty fair under the Ham, and bring the two Ends round the Leg which is cut off, and cause them to be held ; then raise the two upper Ends over the Leg, and encompass it with them : Lastly, raise the two Bars which are on the Sides, and wrap them round the Leg, so that the undivided Part of the Cross may be apply'd on the Middle of the Wound. This Emplaster must not pass over the Knee, as in the first Dressing ; it must be lessen'd as well as the Pledgits, in proportion as the Wound lessens in Cicatrizing : Let these Pledgits be laid on dry, or dipt in some desiccative Liquor, when the Wound is in a healing Condition.

5. Three

5. Three Compresses about a Foot long, and of three Fingers breadth, in four Doubles: Take one of these, put the End under the Ham, and bring it about the Thigh; raise the other End and bring it over the Wound on the Knee, and about three Inches along the Thigh, and let a Servant who holds the Leg keep it on. Take another Longitudinal Compress, and apply the Middle on the Middle of the Wound, making a Cross on the former; raise it all along on each Side of the Leg which is cut off, and bring it forward about three Inches on each Side of the Thigh. Take the third Longitudinal Compress, and apply the Middle of it on the Stump, bringing it obliquely to cross above.

6. A Roller with one Head, about three Inches broad, and an Ell and a half long, to make the Bandage call'd the *Capeline*, which is described of before in the Amputation of the Leg.

7. A great Pillow to repose the Patient's Leg, and support it when it is laid on it.

8. A Cloth folded in four Leaves, to keep the Pus from staining the Pillow.

The Manner of making the Bed for those who have their Legs or Thighs broken.

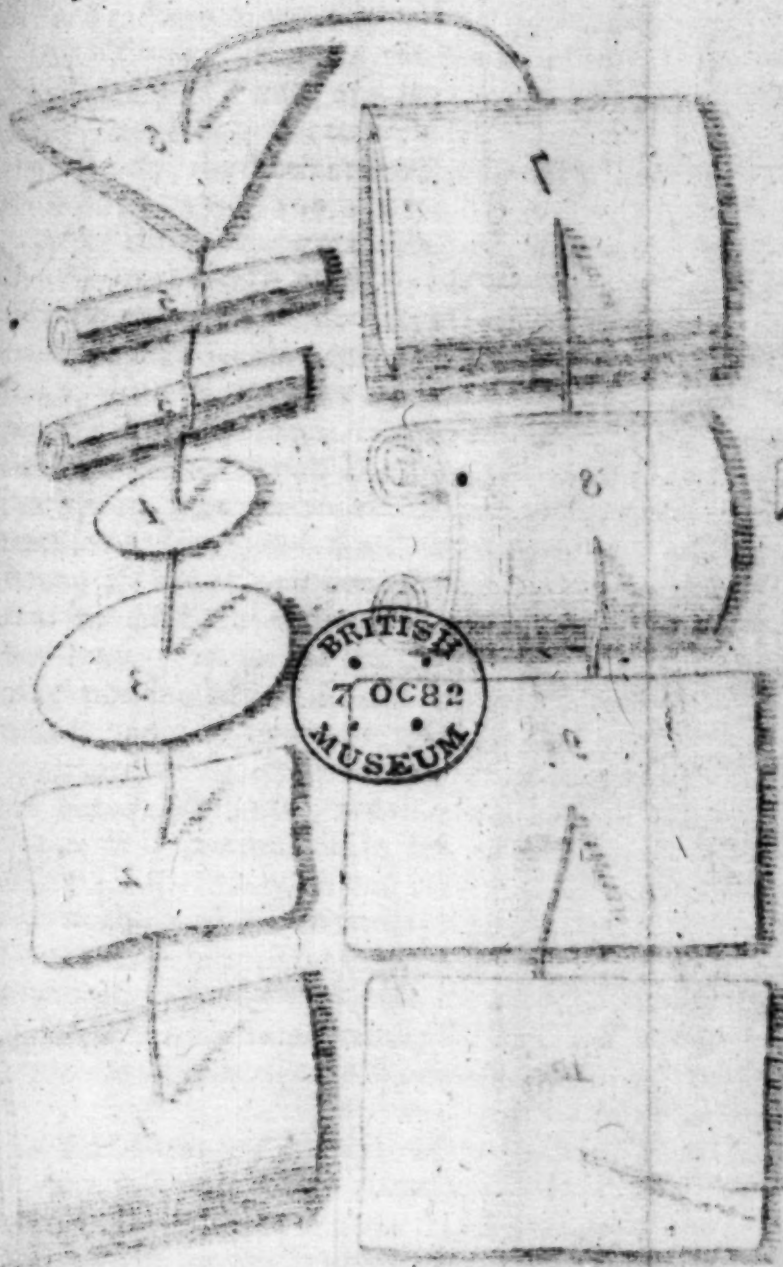
To make this Bed, carry the Patient and lay him on a Couch: Let a very strong Man take him in his Arms, and let the Surgeon put his Arms between his Legs, and let them both carry him dexterously and gently, and lay him along on his

his Back, having first laid on a Quilt or Blanket, and Pillow under his Head and Legs, and then cover him with a Cloth or a good Coverlet, if it be Winter-time, taking care not to lay any Weight that may bear on the Part reduced, and leave him thus till his Bed is fitted.

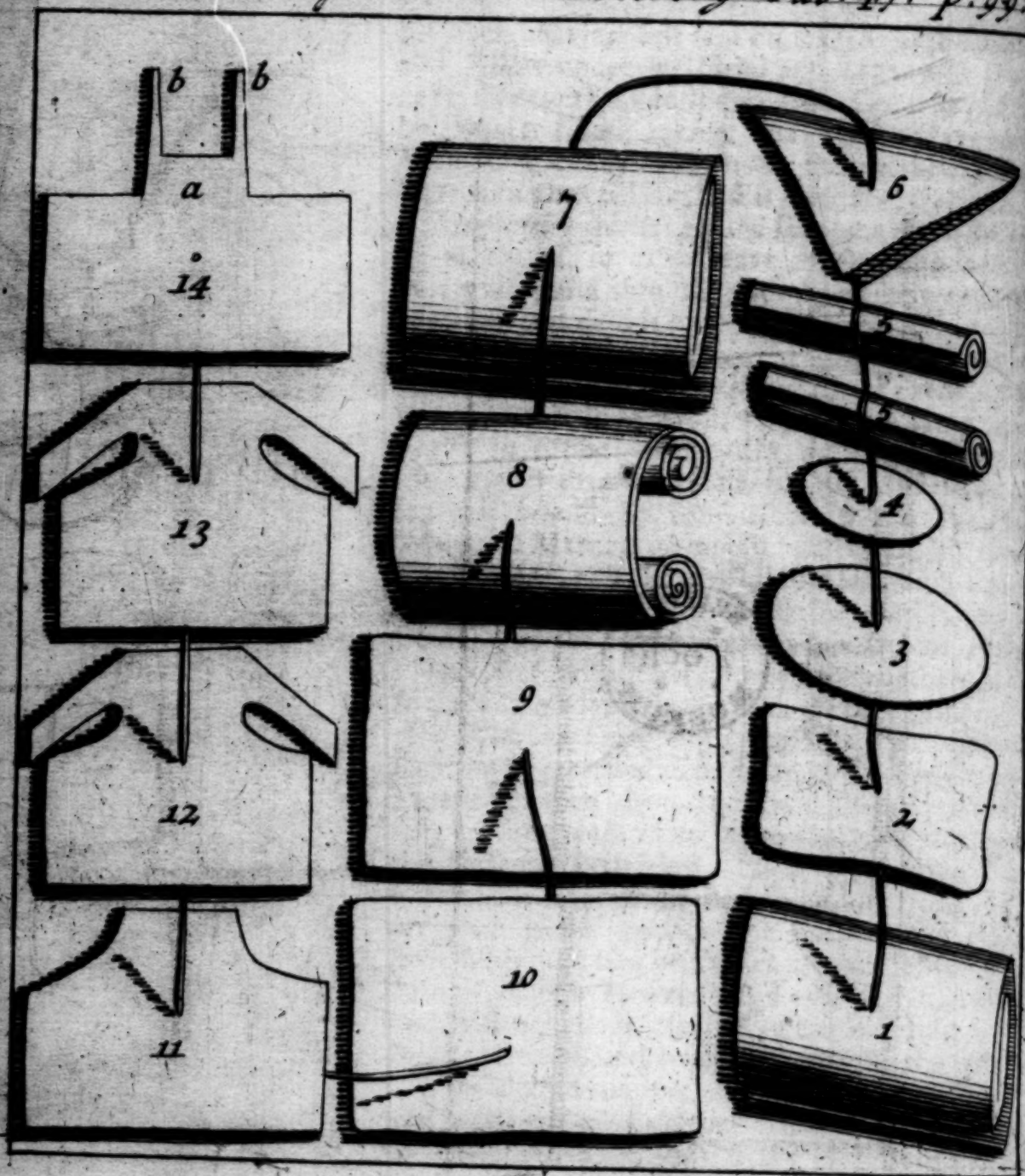
To prepare this, let all the Blankets and Cloaths be taken off, so as to leave the Matting bare; pass your Hand thro' the wide Space between the Matting, and push it on the Right and Left, till it be close and even, because the least Unequalities are capable of incommoding the Patient, by reason of his long continuing in the same Posture: In fitting the Matting, let the Feet be a little higher than the Head, because if these were low, it would be troublesom to the Patient. When the Matting is smooth and equal, lay on a Feather-Bed, which is well beaten, and equal throughout, and a Quilt or Blanket on this, and a Bouldster at the Head, and on this two or three Pillows stuf with Feathers one over another, that so the Patient lying in his Bed, may sit half erect, and have his Head high enough: Lay a Sheet over the former, and turn it round the Bed, to engage it between them and the Bedstead, that all may be firm, and there be no Occasion to make the Patient's Bed often: Place one or two Pillows at the Foot of the Bed. The Bed being thus prepared, gently uncover the Patient, and let a stout Man take him in his Arms, and the Surgeon put his Hands between his Legs, and so carry him with an equal Motion to his Bed: Let the Leg affected be laid on the Pillow, and the sound Leg on the Side of another Pillow, for they must not bear both on the same. Lay a Cradle over the fractured Leg, and let the two Ends pass a little

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For Women after their Delivery Tab. 47. p. 99.



Bandages and Dressings. 99

little under it. See the Figure in the Dressing for a Fracture of the Leg.

All Things being in this Condition, take a small doubled Cloth, and lay it over the Patient's Belly and Legs, because the Cradle keeping off the Cloaths, the Patient would take Cold in Winter, and as for the Summer it may be omitted then.

After this take a great Sheet and spread it over the Patient, which must go over the Cradle, and fall down to the Foot of the Bed, where you must engage it between the Quilt and the Bedstead, that the Air may not enter the Bed underneath; besides this, it likewise keeps the Cradle steady: Take a good Blanket, and spread it over the Sheet, then go to the Bed's Head and turn back the Sheet and Blanket quite to the Bed's Feet; if it be long enough, turn this round the Bed to engage it between the Blankets and the Bedstead, that so the Bed may be tight, that it may not loosen it self, and require to be so often made, and the Air get in underneath.

Since it is necessary sometimes to put in Order the Patient's Pillows, when they get out of their Place, it is convenient to fasten a Cord to the Bed's-Head, if it be Wood, or the Cieling, if not, and at the End of this to have a Stick, which the Patient may take in his Hand and raise himself, and make himself easy whilst the Pillows are fitted:

Draw the Curtains round, if it be Winter, and leave the Patient to take his Rest.

The Manner of making a Bed for a Woman who Lies-In.

It is best for the Woman to be deliver'd in her Bed, because if this be done elsewhere, she cannot, without

without some Difficulty be carry'd to it, when she is fatigued with her Labour.

Let her Bed be made with a Quilt only, without a Feather-Bed, for this is more convenient for her Delivery : And let several Cloths be laid over the Quilt to receive the Waters, and hinder them from spoiling the Bedding, and incommoding the Woman. The Bed must be so made, that she, being laid on her Back, may sit half erect. This Posture is most convenient for breathing, and she will have more Strength to bear down and help her Throws ; when she is laid on her Back, with her Thighs spread, and her Knees rais'd, lay a Pillow under her Buttocks, that the Rump-bone may more easily give way, and let her have her Feet supported on something that is steddty, for her better bearing down her Throws : Observe that the Bed must be so made, that the Woman in Labour may have her Feet near the Feet of the Bed, and the Midwife may assist her.

The Dressings which the Midwives of Paris use after Deliveries. See Tab. 47..

1. When the Birth is over, and the *Placenta* is come away, lay before the Womb a soft Linnen Cloth folded in six Leaves, for fear lest the cold Air enter whilst you are preparing the rest.

2. After this lay a small Pillow under each Ham to support them, and placing her half erect, let her put down her Thighs, and keep her Legs close together ; for such a Situation is proper to help her breathing, and give way for her cleansing.

3. An Anodine Cataplasim apply'd outwardly to the Entry of the Part, to appease the Pain, and prevent Inflammation : Before this be apply'd, the Closure must be removed.

The Cataplasim is thus made ; Take two Ounces of Oil of Sweet Almonds, and the Whites and Yolks of two New-laid Eggs ; put these into a little Skillet over warm Embers, till the Cataplasim be of a good Consistence : Spread this on a Linnen-Cloth, and apply it warm on the Part. Renew this every six Hours, if there be Occasion, that is, if the Pains continue, and you apprehend an Inflammation.

4. A small Emplaster of *Galbanum*, on which some Midwives put a little Civer, and apply it to the Navil : they pretend this comforts the Womb.

5. Some Practisers lay on each Side the Womb a small Roll made with a Napkin : These they say keep the Womb steddy ; but Mr. *Mauriceau* condemns this.

6. A Cloth folded obliquely in four Leaves, to be apply'd on the lower Belly, to compass it a little for the Evacuation of the Waters and Cleanings.

7. A great square Cloth, in four Doubles, to cover the Belly, and keep it warm in cold Weather.

8. A Swathe of a quarter of an Ell in breadth, to encompass the Belly, and keep the Compresses on : This is a large Napkin folded in three Leaves.

Tho' Dressings are commonly used after the Operation only, yet the remaining part of these are to be put on before the Woman's Delivery, because afterwards being much tired and very desirous of Rest, she would not suffer them.

9. A large Linnen Cloth which encompasseth the whole Body, the upper Part of this is apply'd round the Breast under the Arm-pits, and the rest falls down like a Smock : For the orderly applying this, roll it at both Ends ; take one Roll in each Hand, and apply the Middle of the Cloth on the Patient's Back ; then bring it forward, and cross the Ends one over another : This is very useful, because it is so easily removed after the Labour is over, it being souled with the Cleanings. To take it off, you need only draw it at the lower End, without stirring the Patient, which is a Convenience which a Smock has not.

10. A large single Cloth to go round the Belly of a Woman newly deliver'd : This must go to the bottom, instead of that which is taken away, and serves instead of a Smock, till the Woman be in a Condition to put on one.

11. A great Cloth with Waves to put round the Woman's Breast : The Portion arises towards the Neck behind, and the two Waves *B B* are put under the Arm-pits, and this half Smock is fasten'd behind by crossing it.

12. A small short Smock open before, put over the Smock.

14. A small Corcelet or Neck-piece ; begin to apply this behind, and cross it on the Bosom before ; it serves only to cover the Breast : The elongated Portion marked *A* is in the middle of the upper Part of the Back ; the Laps *B B* pass over the Shoulders, and are brought before and fasten'd on the Bosom.

Take Notice that this Neck-piece and half Smock, &c. are only put on in cold Weather,
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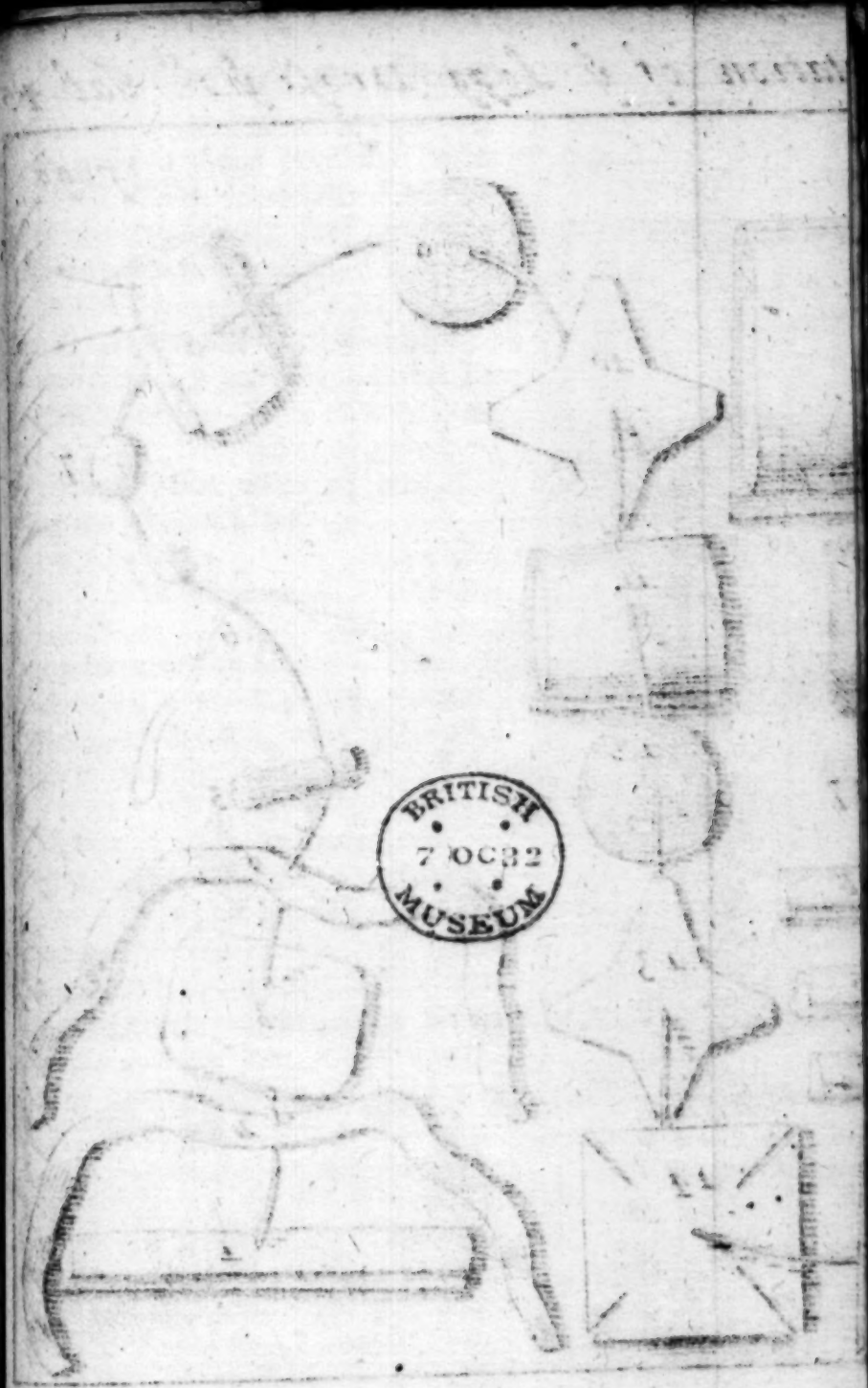
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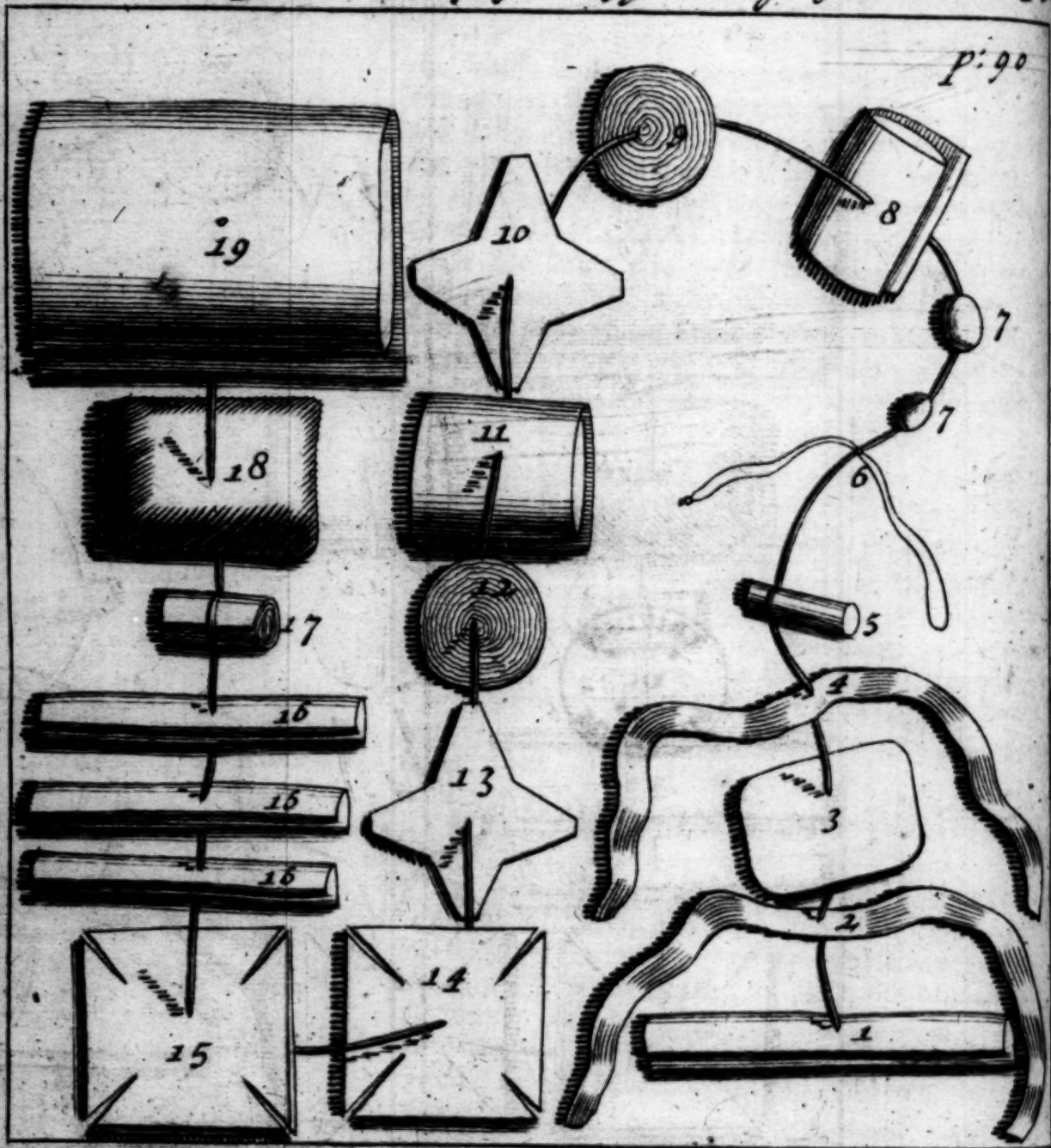
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For an Amputation of y^e Legg Dress y^e 1st. Tab. 45

p: 90



for in warm the Smock is enough; however, you must have a Care that the Patient do not take the least Cold, especially in her Breast, for fear least the Milk coagulate, and form Abscesses or Schirrous Swellings.

As the Midwives of *Paris* are, or ought to be, the ablest in *Europe*, by reason of the frequent Occasions they have of making Trials: I thought I might oblige the Country Practisers by giving them their Dressings, which I have caused to be engraven from those of one of the most famous Women in that City.

The Dressing for a New-born Child.

As soon as the Infant is born, let the Navil be ty'd with a good strong waxed Thread four or five times double, of a quarter of an Ell long, which must be ty'd at each Extremity, that the Ends may not be troublesome.

When this is prepared, tie the Navil-String about an Inch from the Belly, and make a double Knot on the first Round; then bring the Thread round a second time, and back again, and then tie it: Lastly, cut the Navil-String an Inch below the Ligature, towards the After-burthen. The Ligature must not be either too strait or too slack, for in the first Case there would be a danger of an Inflammation, and in the latter the Blood would get out: After the last Knot is made, you must not cut the Thread, for fear of being obliged to straiten it a second time, if the Blood should happen to get thro' the first Ligature.

When this is done, wrap round the Navil-String with a single fine Linnen-Cloth, which may be dipt in Oil of Roles, and make two or three Turns

Turns round it with this, to keep off the Cold,

In the next place, take a double Cloth and lay it on the Child's Belly, between the Navil and the Breast, and on this lay the remaining Part of the Navil-String-wrapt up as before.

When every thing is thus disposed, take a Swathe three Inches broad, and long enough to embrace the Child's Belly; bring it over the remaining Navil-String, which was laid on the Belly to keep it steady: The Part must be left in this Condition, till the Vessels are entirely reunited, which is done in six or seven Days, or at farthest in nine: After which, that part of the String which is beyond the Ligature, receiving no Nourishment, falls off.

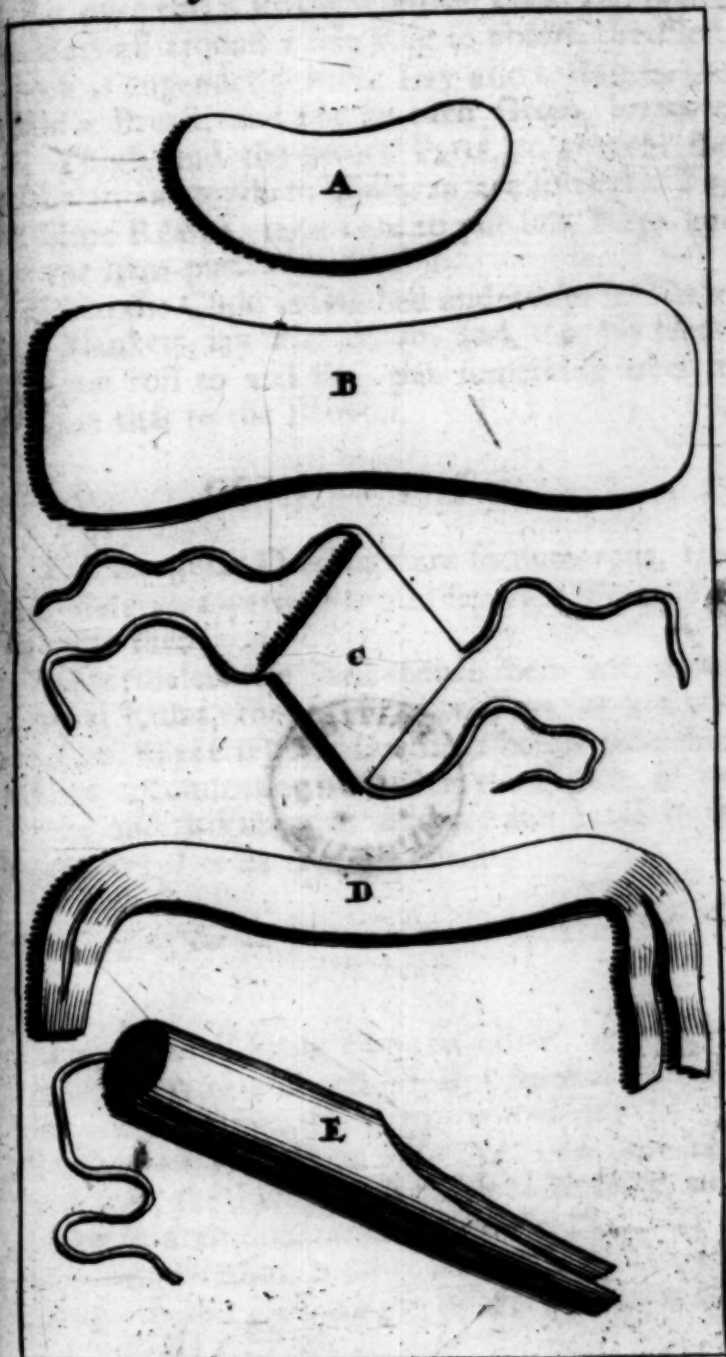
In the last Place take a Bit of fine Linnen, or a soft Sponge, dipping it in warm *Aqua-Vitæ*, and with this cleanse the Child's Body. I think it not improper to allay this with a Moiety of Water, for fear of intoxicating the Child.

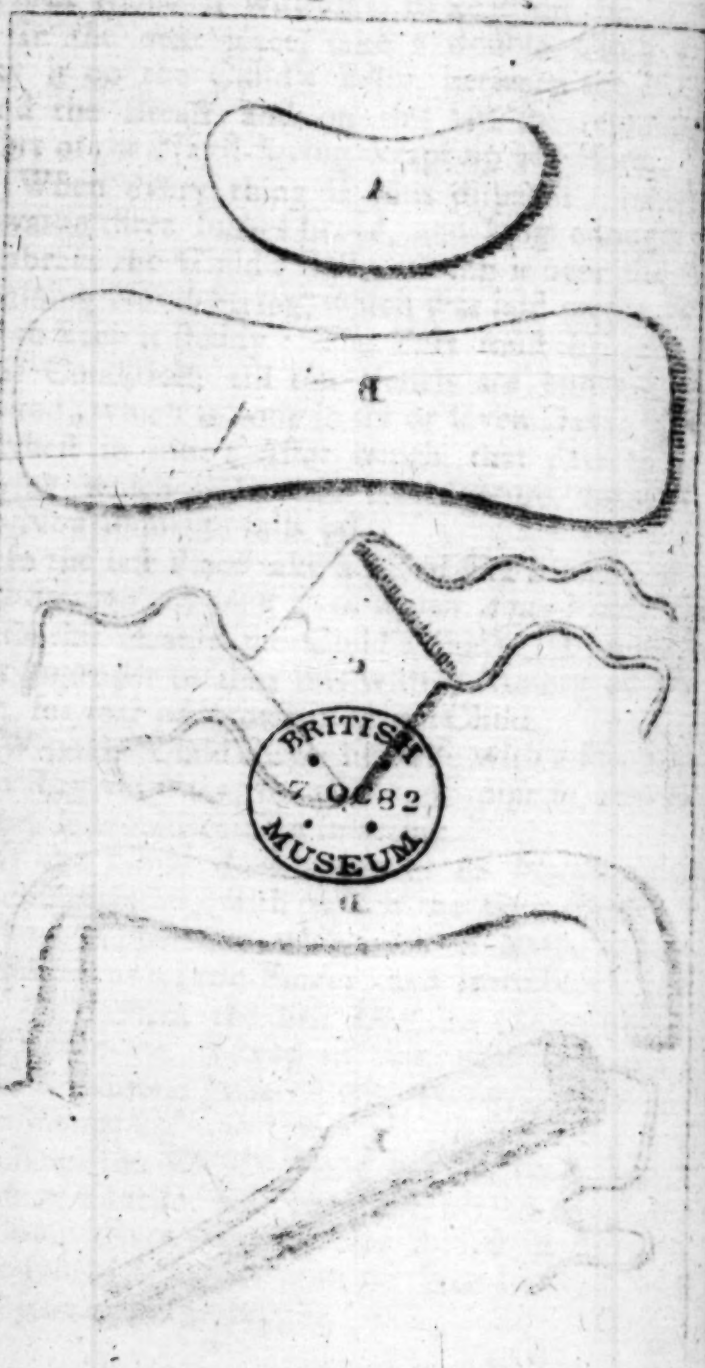
Wipe the Child's Eyes likewise with a fine Linnen Rag very dry, for if it were dipt in any Liquor, it would cause a smarting.

If the Child does not void its *Meconium* or blackish Matter, with which the Guts are fill'd, make a Suppository with a bit of Soap, as long and thick as a little Finger, and introduce it into the Fundament the first Day, to excite him to evacuate; or, instead of this, you may put a sugar'd Almond smeared with Honey, boil'd to a Consistence.

Cover the Child's Head with a little Biggin made of Linnen, and over this, on the Mold, lay a Compress of Linnen Rags folded in three or four Doubles, which must be three Inches broad, and pinned to the Biggin.

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Put over this a small Woollen Cap, and under the Ears all around a fine Rag to absorb the Flesh which is engender'd there: Lay also a Rag on the Child's Breast, and one on each Groin, between the Thigh and the genital Parts, to prevent the Excoriations to which Children are subject: For the same Reason, take care to put soft Rags under the Arm-pits.

When the Child is swathed and wrapt in Cloths and Blankets, lay him down, and, that his Head may not roll to and fro, put something over it, and pin that to the Blanket.

Of Irregular Dressings.

The Irregular Dressings are so numerous, that they deserve a particular and separate Treatise to describe them.

Nevertheless we shall reduce them all to two general Rules, that is, to refer them, as much as may be, to the regular Dressings before described, and to accommodate them to the Figure of the Part; and this requires Address and Sense in the Surgeon: Let us try our Ability.

A Dressing for an Ulcer behind the Ear. See the last Table.

Lay a small Pledgit on the Ulcer, and let this be armed with a Digestive, if you would suppurate, or a Desiccative if you would dry it: Lay the Emplaster *A*, which is in the Form of a Crescent, over the Pledgit. You see it must have this Shape to accommodate it self to the Part; for not only the Dressing is more neat, but it covers the Pledgit better; it would be very inconvenient

to keep this small Dressing on with a Bandage, and therefore lay a sticking Emplaster on it, which will cleave of it self.

You must never multiply the Pieces of your Dressings without Cause, for they are troublesome enough of themselves.

A Dressing for the Stump of a Finger which is taken off.

Lay a Pledgit on the Wound, and arm it with such a Liniment as you shall think fit: Lay on this an Emplaster of the same Shape as is marked *B* in the last Plate: Apply the Middle of this on the Wound, and let one End fall on the out-side, and the other on the in-side of the Hand. You may see, that these two Pieces will not suffice as before for the Ear, because that has no Motion, and the Hurt not very considerable; but the Hand being in Motion, and the Wound great and dangerous, you must lay a Compress as broad as the Space between the Fingers, and long enough to cover the Emplaster which falls over, and within the Hand: You must keep this Compress too, steddly with another, which is two Inches broad, and long enough to go round the Hand, bringing it between the Thumb and Fore-Finger, and over the first Compress; then pin one End on the other, which not being sufficient to keep on the Dressings, you must make use of a Fillet as broad as the Points of two Fingers, and about an Ell long, rolled up at one End: Make two Rounds about the Wrist; bring down the Roller on the back of the Hand; pass it over the Wound, and then within the Hand, and after round the Wrist; continue till the Fillet is spent, and then fasten it round the Wrist, and so you will have a small and pretty

ty neat Bandage, which will hold very well, and keep the Medicines on the Part. Here you see an Occasion to make use of your good Sense. The Emplaster is made broader, where it is to go on the out-side and the in-side of the Hand, than where it covers the Wound, because such a Shape helps it to keep on the Part. The Compress is contrived to keep the Emplaster on, and the Fillet is used, because without such a Bandage it would be difficult to retain the former between the Fingers.

The Dressing for a Wound or Ulcer on the Buttocks.
See the last Plate.

Lay your Pledgits on the Wound, and your Emplaster over, and then a Compress: You see these Applications cannot be kept on by rolling the Part, and therefore make use of the Bandage marked C in the last Plate, that is, a large square Piece of Linnen-Cloth with a Strap fasten'd to each Corner; this is call'd the Buttock-piece: Bring the two Straps round the Hips, and apply the middle of the Cloth on the suffering Part, and then bring the two other Straps round the Thigh. This Bandage is very convenient.

The Dressing for an Extraction of the Stone, when it is in the Yard.

This Operation consists in making an Incision into the Yard, to bring the Stone out of the Urethra.

You know the cicatrizing does streighten the Part, and therefore it may be feared that the Urethra may be so closed, that the Urine could not come

come away, and therefore you must pass into the Duct a small Leaden-Pipe to keep it open whilst the *Cicatrix* is forming: You must lay on the Wound a little longish Pledgit armed with some Balsam, and over it a small Emplaster; keep all on with a little Fillet of one Finger's breadth, with a Hole at one End, and slit length-ways for two Inches at the other, as you see *D* in the last Plate: Pass the two Tails thro' the Hole at the opposite End of the Fillet. Put the Yard into this Fillet, then rise and descend with small Edgings, and when the Fillet is spent fasten it at the End; if this be not sufficient, put the Yard into the Bag or Case, marked *E*; see the last Plate. This Bag must have a Hole at the End for the Urine to pass through, without taking it off, and must have two Tapes or small Straps, to fasten it to the Girth which goes round the Waste, for the keeping it up.

A Dressing for a Wound in the Head where the Bone is bare, the Teguments separated from it, and there is a great Putrefaction.

Since there is Putrefaction and a large Suppuration, and the Bone is bare, you may perceive it is carious, and there is no room to hope that the Skin should grow to it: Lay then your Pledgits between the Bone and the Skin, having first dipt them in some spirituous Liquor, to receive the natural Heat of the Part; let these be made large enough to cover the Lips of the Wound. There can be no Suppuration here, but that the *Pus* must necessarily corrupt the Bone, and therefore it is not to be hoped that such a Wound can be cured without Exfoliation, and therefore you must

must lay on the Bone a Pledgit dipt in some spirituous Liquor to advance it : But if you hope to avoid this, then use only a dry Pledgit. After this, lay a large Emplaster over the whole Wound, which you must snip with the Scissars round, that it may accommodate it self to the Figure of the Head. For it is a general Rule for all Emplasters, that you must give them several Snips with the Scissars on their Edges, for the better adjusting them to the Part when it is round, as the Knee, Shoulder, &c. In the last place, lay a Compress of Rags doubled over all, and keep the Dressings on with a folded Handkerchief.

A Dressing for a large Ulcer where-ever it be, as on the Thigh, one Part of which is red, the other fungous and over-run with superfluous Flesh, another Cavernous, another Sanious, another part Callos ; which Accidents often happen to the same Wound.

Since there is one Part red, there is a Disposition to cicatrize, and therefore you must lay on it a Pledgit of dry Lint ; since another Part of the Ulcer is Fungous, you must touch it with a Caustick, and then lay a dry Pledgit on the Place, and at the next Dressing look on it, to see if the Fungosities are gone, and then a Pledgit armed with deterging Medicines on it. Since there is another Part Cavernous, by the Help of a Probe, you must thrust a Pledgit dipt in some Digestive into the Wound, if there be a need of procuring Suppuration ; or a Detergent, if the Suppuration be good, and the Matter not stinking or virulent. In the Place where the Wound yields a

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Sanies,

Sanies, lay on it a Pledgit armed with a Digestive, and remove the Callosities by a Caustick; over all lay a large Emplaster, a Compress, and apply a convenient Bandage.

You see by this small Specimen, that the irregular Dressings are infinite, since they differ according to the Circumstances of the Disease, and the Part affected.

Consult therefore your own Reason, and frequent the Hospitals as much as you can, which are the best Schools for a Surgeon.

The Dressing for bleeding in the Foot.

The Dressing must not be forgot, and is made after a Manner not much different from that of the Arm. Let your Compress be something thicker: The Bandage is made with a Roller two Ells long. Put one End of the Roller on the Knee, and lay the Patient's Heel on it; bring the Roller several times over the Compress, as is done on the Arm, and after pass under the Foot the End of the Roller which is laid under the Heel, to make a Stirrup, that so the Roller may not fall to the Ground. Tie the two Ends, and make a Bow on the Knot, as in Bleeding in the Arm.



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